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Architecture in Sydney.

FOR several years since 1893, when Bank failures seriously affected the whole progress of Australia, building work, as might be expected, has been very slack in Sydney as well as in the other Australian capitals. But during the last two years, and especially the last twelve months, a decided improvement is manifest, and matters architectural are almost resuming their normal condition of steady progress. There is not the undue inflation of the ten or fifteen years preceding 1893, and it is to be hoped that it will not be repeated, as it is certain to be followed by a reaction more or less severe. The advance in general prosperity is evidenced by the increased number of new buildings in the capital city, and this is all the more satisfactory, as the greater part of the interior of the Colony has been suffering from a severe drought for several years past. Except in the far north-western districts seasonable rains have lately fallen, and hence the prospects for next season are decidedly satisfactory. This means that wool, the staple product of the Colony, will be produced much more largely, and if prices maintain their present level the profits will help to maintain our present satisfactory condition.

In a previous article we referred to a large building erected by the Equitable Life Assurance Company of New York in the Romanesque style, which we thought would have an influence on subsequent works, and this has proved to be the case. The most important instance is the new Victoria Market Building, erected a year or two since by the City Council: a structure 611 ft. in length by 96 ft. in width, and surmounted by one large and twenty small domes. It possesses the inestimable advantage of an excellent site near the Town Hall, and faces good streets on each side; but for all that it is a failure, practically, artistically, and financially. The Architect and the Council do not seem to have grasped the idea of what a market should be. They have in fact relegated it to the basement. As a result, light and ventilation are deficient and access is difficult, notwithstanding lifts both for people and for carts. In the old market on the same site, which the present building superseded, a large trade was carried on in fruit and vegetables, thus showing the suitability of its position. But, notwithstanding the fact that the position remains the same, the drawback of a basement for market purposes has proved an absolute deterrent, and not a single legitimate market tenant is to be found therein. The ground story of the building has been converted into a covered arcade running the whole length with transverse entrances midway. Shops with fronts both to the arcade and to the street fill up the remainder of the space. Many of these are yet empty, although offered at unremunerative rentals, and are likely to remain so for a long time to come. The upper stories of the building are approached by staircases, lifts, and internal galleries, with the idea that they would let for offices and showrooms, but here again anticipations have not been realised to any extent. Architecturally the building is hardly more successful than it is practically, for although imposing by its size, the detail is wiry and mechanical, and the vigour typical of the style quite wanting. One of the chief errors in design is the cutting up of the long façades into vertical divisions by clustered shafts or slightly projecting bays, instead of emphasising the strongly marked horizontal lines of the building. Even the main cornice is broken by projections and the vertical treatment is accentuated by the multiplicity of small domes. These in themselves are of fair size, but in contrast with the large central dome look mere cupolas. All round the lower story, covering the footpath, a verandah has been built consisting of strong and fairly well designed cast iron columns and an iron and glass roof.

Here, again, the tendency to cut up features vertically has manifested itself, as each frieze between the columns is subdivided into three parts instead of being treated, as would have been better, in a horizontal fashion. On the whole, however, the verandah is an advance on most of those seen in the City or permitted by the Council, who compel building owners to adopt a uniform design of very inferior character. The two principal lateral entrances, with their massive polished granite columns, radiating wheel tracery, and large semi-circular arches over them, have a good effect, especially when the perspective of the stone staircases inside is taken into consideration. Some of the carving and modelling of the caps is pleasing in design, although too mechanical in execution. The large dome which surmounts the structure might have been made a very striking feature, but it is marred by a very high vertical stilt, the optical effect of which is to make the dome itself look as if it were crippled. The base of the dome is surrounded by a light corbelled balustrade, evidently studied from that which surrounds the dome of the cathedral at Florence; but, unfortunately, it is meagre and thin in detail. The lantern which crowns the dome rises vertically out of it, without any line to soften off the junction, and is crowned by a small cupola. The predominating feeling of the critical observer is that a great architectural opportunity has been missed.

Three other buildings in the Romanesque style have lately been erected in the city, all forming sets of offices. The building erected by Dalgety & Co. has an excellent site facing a large open space, and stands on a rather steep slope, which permits of two ground floors being obtained. The building is four stories in height; the principal entrance is in the centre of the longer frontage, and the corner at the street angle is rounded off. The lower story is in rock-faced stonework, and the upper stories in brick, relieved with stone bands. Apart from the semicircular arched entrance and the very flat bow-window over, there is but

little feature in the building, and what little there is might have been omitted with advantage; for instance, the windows on each side of the central entrance are placed in 4½-in. recesses, arched over at the top under the main cornice. As, however, the stonework is mostly rock-faced, the effect of these shallow recesses is decidedly feeble; indeed, it is a question whether the rock-faced stonework itself is not a mistake as a dressing to the smooth and truly-laid brickwork. The general idea of a dressing is that of a superior material to the bulk of walling, whereas in the present case the finish, at any rate, is inferior. The main cornice above the second floor is corbelled, but the corbels are crude, and the level coping-stone which finishes off the building is unduly heavy; in fact, the whole effect of the building is somewhat forbidding, and gives one the idea rather of a warehouse to carry heavy loads than a set of offices for an important and prosperous company.

The second set of offices is in the same neighbourhood, but has only one principal front to the street and a side front to a narrow lane; its dimensions are less, and although only three stories in height, the general effect is vertical rather than horizontal. The whole of the exterior is of stone, and the greater part of it rock-faced, hence the effect is more homogeneous than Dalgety's building. The ground story of the front elevation has coupled windows with transomes and semicircular heads. The first-floor windows have transomes and square heads, absolutely plain, without a moulding of any kind, but the upper-story windows are treated as broad frieze with shafts between. The cornice is of the corbelled variety, but scarcely more satisfactory than in the other case, and the only feature of the design that possesses special merit is the entrance doorway, which is semicircular-headed, the one half being entrance, the other half window.

The last building in the Romanesque style to be noted is a new set of offices in Bridge-street, now being erected for Messrs. Burns, Philp, & Co., conjointly with the Norddeutscher Lloyd and the North Queensland Insurance Company. This is a structure three stories in height with dormers to the roof; the whole of the front is in stone, somewhat coarsely treated, but the general effect is more pleasing than in either of the examples just referred to, and the practical difficulty of obtaining a large amount of lighting surface has been very well overcome without spoiling the composition. The large central semicircular-headed doorway gives access to the firm's offices, while the shipping company and the insurance company have subordinate, but separate entrances on either hand. Above the three entrances are flat elliptical bays, which, on the whole, look very well, except the corbelling carrying them, and on this the rounded ribbing is extremely coarse. Considerable use is made of projecting circular shafts running up the front of the building, together with smaller shafts to the windows, which look well on the whole, but the carving leaves a good deal to be desired. The corbelled cornice, again, is a weak feature in the composition, and the roof, sharply sloping in front with a flat pitch to the rear, is by no means a thing of beauty when seen in perspective in walking up the street.

It is sincerely to be hoped that these are the last examples we shall see of this style in the city of Sydney, for, however well carried out, there is a want of harmony between the rough-and-rugged treatment, which alone seems effective, and the surroundings and requirements of modern life in a great city with a bright and genial climate.

It is a relief to turn from buildings such as we have described to take a glance at the scores of new and artistic dwellings which are being erected in all the suburbs. Fifteen or twenty years ago cement fronts and slate roofs were universal, while to-day they are fortunately the exception. Plain, honest brickwork or rough cast have taken the place of the cement, and tiles from the south of France have superseded the slates. At the same time the whole character of the design is altered, and instead of speculating builders' Italian, we find a fair number of designs of high merit with a still larger number that are quite passable. Of course, the speculating builder has followed the fashion and vulgarised it, but not to so great an extent as might have been expected. It would be an impossible task to enumerate in detail even the best of the dwellings that have been put up in recent years, but honour should be paid to those architects who have distinguished themselves in a field of professional effort that involves a great deal of work for very little pay. Amongst them should be named Mr. Jeaffreson Jackson, Mr. Manson, Messrs. Sulman & Power, Mr. Joseland, and Mr. Durrell.

While referring to architects by name, it would be invidious not to mention the highly capable and esteemed Government Architect, Mr. Vernon, who has through his department added a large volume of architectural work of high quality to the output of the last few years. Perhaps the most important work he now has in hand, from an architectural point of view, is the new Art Gallery, a portion of which has been completed, one wing is still in hand, and a further instalment in prospect. This building bids fair to become the architectural *chef d'œuvre* of the southern hemisphere, and its progress will be watched with the greatest interest. The design consists of a central hall of great size, with galleries and wings on either hand; and as it is only top lit the exterior presents an unbroken surface of walling, unbroken, that is by windows, but relieved by porticoes and colonnades. The style is Ionic, and the general feeling Greek rather than Roman. The special feature will be the series of panels which it is the intention of the trustees to fill with low relief sculptures in bronze. One of these panels, about 12 ft. by 9 ft., has already been modelled by the late Mr. Ball, and the casts are now in England for the preparation of the bronze-reliefs. If, when the panel is fixed, the result is as satisfactory as anticipated, it will no doubt lead to the gradual filling of the remaining panels, so that the building when completed will present a finer series of bronze-reliefs than any example we can think of for the moment.

Mr. Vernon's fine design for a Parliament House has not been dealt with in view of the imminence of Federation, the institution of a new capital city not less than a hundred miles from Sydney, and the inevitable reduction of the present numbers of the Legislature to a more moderate compass, a consummation devoutly to be desired; for one of the chief drawbacks to the progress and well-being of the colony is the number of politicians and hangers-on who live upon the country and impede useful legislation. It is an absolute fact that millions of money would have been invested in reproductive works in New South Wales but for the impossibility of obtaining an authorising Act to carry out works of public utility in a reasonable time and at a reasonable cost. If Federation will relieve the colony of this incubus it will be worth, for that improvement alone, all that it may cost.

Another of the Government architect's works, and a very difficult one, is the addition now being made to the General Post Office, which consists of a single story over the whole area, and a double story at each angle. The most noticeable feature of the original composition is the tall square tower, quite one of the landmarks of Sydney, which used to rise in a very crude and unpleasant fashion from the main cornice. Mr. Vernon has overcome this by adding a slight wing on each side, which very much improves the setting of the tower, and he has treated the angle pavilions with high mansard roofs and small stone dormers. The windows under are large and semi-circular, enriched with sculpture in the spandrels; very satisfactory in themselves, but a little out of keeping with the original design of the structure below. This departure from the original design has been much criticised, but scarcely with reason. It is a point of considerable interest, when an architect has to make additions to a building, whether he should be bound to literally follow its design, however unsatisfactory it may be, and thus make the harmony a mediocrity, or whether he should, as in the present case, somewhat diverge by introducing work of a much higher architectural character. The latter has certainly been the custom in the past, and on the whole it seems best that it should be the custom in the present as well. The most unfortunate feature in the design is the recessed addition to the mansard at each end, which is required to give the necessary internal accommodation. Its roof is higher than that of the mansard itself, and although the additions are a little out of sight by being recessed, yet from many points of view they are not very satisfactory.

The buildings we have described by no means exhaust the list of those worth criticism, but space forbids and they must await another opportunity.

NOTES.

London Main Drainage.

In touching on the subject of the main drainage of London in his address, the Chairman of the London County Council was able to give some gratifying evidence as to the improvement effected in the Thames by the great works of drainage carried out in the past, which may serve to reconcile us, in some degree, to the expenditure threatened in the future. Though the quantity of sewage increases every year, the actual expenditure of the committee on maintenance has been 5,000*l.* less than in the preceding twelve months. The second notable fact is that a given number of gallons of sewage produced a less weight of sludge this year than they did last year, showing

that the methods of precipitation are improving, and that water which formerly had to be carried out to sea at great cost now runs into the Thames at the outfalls. As a testimony to the improved state of the river, an eel—a historic eel, of large proportions, has been caught in the Thames, and was sent in evidence to Sir Arthur Arnold, who communicated the good news to the chairman, though he seems to have appropriated the eel. We are now called upon to face an estimated expenditure of 2,947,000*l.* on an extension of the main drainage system, which was designed forty years ago to serve the needs of 3,450,000 persons, while the population to be provided for has actually risen to 4,700,000, so unexpectedly rapid has been the growth of London. It is not likely that this rate of growth will be maintained; it is partly the result of crowding into the capital from the country, and a reaction against this is almost bound to come. But an extensive enlargement of the drainage scheme is no doubt called for, and the expenditure ought not to be grudged. It will be repaid in the increased health of London and the improvement of the river.

Day Classes for the Association.

MR. SETH-SMITH'S suggestion, in his presidential address, for the establishment of day classes in connexion with the Architectural Association, may prove to be the precursor of a very important movement in architectural education. As he observes, the apprenticeship system labours under the two disadvantages that the master in most cases has not really time to devote to the pupil, and that the latter is bound for a term of years before he can really find out whether he is naturally suited to the profession ("or art") of architecture. If he commenced his architectural training in classes he would have opportunity of finding out his own capabilities before binding himself to anything for a term of years, and could abandon it without serious loss if he found he had mistaken his vocation. That, of course, is only a collateral advantage; the more important one would be that he would be getting a systematic training during the first two years of his study. Nothing, we believe, will supply the place of office experience in actual work; but this should be the practical training after the theoretic training has been gone through; and the pupil who has first attained a general knowledge of construction and design will thereby be much more fitted to make the best use of his office experience. The suggestion made by the President of the Architectural Association may perhaps prove to be the first commencement of the establishment of a college for architectural training in this country.

Lunacy in Professions and Trades.

ONE of the numerous appendices to the recently issued Report of the Commissioners in Lunacy endeavours to indicate the proportion of insane persons in different professions and occupations. Owing to reasons arising out of changes in the tabulation of the census of 1891, as compared with 1871, the figures are in some cases incomplete. For instance, whilst we are told that the yearly average number of civil engineers admitted as lunatics during the five years 1894-8 was thirty-five, the number of persons engaged in that profession was not ascertained, so that the ratio of lunatics to the total civil engineer population cannot be shown. The same remark applies to the statistics relating to artists in painting and sculptors, who supplied a yearly average of seventeen male and four female lunatics; paperhangers, plumbers, painters, and glaziers, who contributed a yearly average, during the period 1894-98, of 198 lunatics; and bricklayers, masons, paviours, slaters, tilers, plasterers, whitewashers, stonecutters, and stonedressers, from which group came yearly 203 insane persons. Under the following heads more complete information is given:—Architects, surveyors, and builders, number of persons in these occupations on April 6, 1891, 51,280 males and 213 females; yearly average of the number of lunatics admitted during the five years 1894-8, thirty-four; ratio (per 10,000) of the yearly average number of lunatics to the whole population in the group, 6·6; carpenters and joiners, 220,661 males, 348 females; ratio (per 10,000) of the yearly average number of lunatics to the whole population in the group, 8·7.

The Westminster Improvement Scheme.

THE following brief summary of the history and the present position of the Westminster Improvement scheme is given in that portion of the address of the Chairman of the County Council which deals with the work of the Improvements Committee:—"A syndicate of money-making individuals conceived the idea that by pulling down all the poor property between the House of Lords and Lambeth Bridge, and erecting in its place lofty sets of offices and residential flats right up to the water's edge, a considerable profit would be realised. They accordingly sought powers of compulsory purchase in the session of 1898, and obtained so great promise of support in the House of Commons that there was grave danger of this scheme being carried, and the Thames Embankment and the vicinity of the Houses of Parliament being ruined for ever. In this difficulty the Council was driven to declare that if Parliament would withhold its sanction to the bill the Council would in the near future deal with the matter itself, and on the strength of this offer the Syndicate's Bill was rejected. Thereupon the Council in the ensuing session found itself morally bound to promote a scheme for the purpose of rebuilding this particular area, and, as might be expected, when the scheme came to be elaborated upon the only lines upon which the Improvements Committee could see their way to execute the work so as to provide the requisite embankment and open space which alone would command public approbation, they found that, instead of there being a prospect of the handsome profit anticipated by the syndicate, there would be, after allowing for the sale or leasing of the land, a net loss on the transaction of some 530,000*l.* This consideration, however, did not deter the Improvements Committee from recommending the execution of the project, and the Council assented to their demands. The danger of Parliament allowing a syndicate to play havoc with the embankment was felt to be so imminent that the Council was of opinion that an expenditure of half a million would be justified by the public as the price of its freedom from the clutches of private enterprise. It is not for me to say how far I think this opinion was correct. I am only recording facts. First, the fact that a syndicate forced the hand of the Council; secondly, the fact that the House of Commons, in 1898, practically compelled the Council to undertake this improvement; and, thirdly, the fact that her Majesty's Government have made no money contribution whatever towards the cost. And I may now add a fourth fact, namely, that the Bill has become an Act of Parliament, but with a new and more expensive plan forced upon us by the Committee of the Lords, which will involve an additional charge upon the ratepayer of a sum variously estimated at between 50,000*l.* and 100,000*l.* The total net cost will accordingly be something approaching 600,000*l.*, of which the Council bears five-sixths and the new City of Westminster one-sixth."

Architectural Association Discussion Section.

THE Discussion Section of the Architectural Association opens on Friday evening this week with a paper by Mr. Geoffrey Lucas on the suggestive subject "Logical Building and its Influence on Design." Mr. C. H. Strange is the chairman, and Mr. H. H. Statham is the special visitor for the evening. In connexion with the subject we may take the opportunity of making it quite clear that the chairman, Mr. Strange, is *not*, and is no connexion of, the person of the same name and initials, and living, like himself, at Tunbridge Wells, who was defendant in a "breach of promise" case a few days ago. Mr. Strange's friends will sympathise with him in respect of the annoyance he may have experienced from this unfortunate identity of name and residence.

THE STATISTICS OF SAXON CHURCHES.

BY PROFESSOR BALDWIN BROWN.

III.—THE CRITERIA (*concluded*).

THE fourth in the list of criteria given above, that of openings, must be employed with the same caution as the rest, for even the most characteristic form of opening, the double-splayed window, is, in one part of the country at any rate, an unsafe guide. There are some forms of opening claimed as marks of pre-Conquest origin that are really as much Norman as Saxon. One of these is the plain unrecessed chancel or tower arch on square jambs, without angle-shafts or mouldings, where the round head, sometimes set back on the jambs, springs from imposts square or chamfered, that are sometimes returned along one or both of the faces of the wall. Some of these, as at Corbridge, Northumberland, and perhaps Escomb, Durham, are actually Roman arches re-used, while others are almost certainly Norman. In his "Notes on the Churches of Derbyshire" Dr. Cox is inclined to claim arches of the kind, such as those at Sawley, Marston Montgomery, &c., as pre-Conquest features, but it is only safe to do this when there is pronounced Saxon character in the masonry. If the stones of the jambs and the voussoirs run through the whole thickness of the wall the work is almost certainly Saxon, and this presumption is still further increased if the jambs are lined with large upright slabs alternating with horizontal binding pieces after the fashion of long-and-short work. On the other hand, if jambs and arch are constructed with facing stones and rubble filling, as for example at Stainton-by-Tickhill, Yorks (fig. 5), the presumption is in favour of a Norman origin, though there may be Saxon jambs, as at Stow, Lincolnshire, that are built without through-stones. There are more than forty examples of these plain arches in the list.

Another form of opening of neutral character is the small narrow round-headed window, widely splayed internally, and often with the outer head cut out of a single stone. The external opening may have a sharp arris, or may be chamfered, or may have a rebate all round for a wooden shutter. Such an opening can be Saxon, but is more generally Norman, and the former ascription can only be allowed when some special features are present. The most decisive of these is the sloping jamb.

This inclination of jambs, so as to widen an opening in the lower part, is alien to Norman practice, and is a characteristic of Celtic stone building. In England the peculiarity is not confined to the earliest structures which might be assumed to be under direct Irish influence, but occurs in work that must be late in the Saxon period. The masonry of the jambs of a plain round-headed window may betoken a Saxon hand, as is the case in some early examples in county Durham. The opening with a triangular head, formed by two stone slabs meeting at an angle, as in the numerous examples in the east walls of early towers over the tower arch, has a more decidedly Saxon character; there are, however, Norman as well as Roman examples of the feature. The flat lintel forming a square-headed door or window is not confined to Saxon buildings.

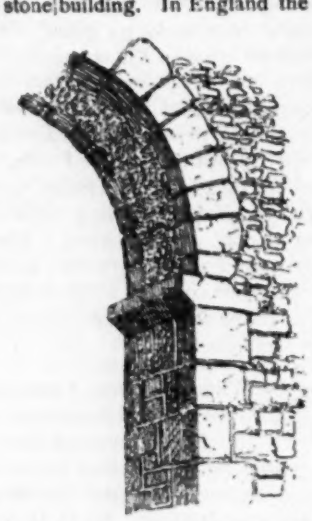

Fig. 5.—Chancel Arch at Stainton-by-Tickhill, Yorkshire. Norman Type.

Passing on to openings that in their general form and character are not neutral but of decidedly Saxon type, there may be mentioned first the round-headed windows cut after Roman and Early Christian fashion, straight through the wall without any splay. Such windows survive in the clearstory at Brixworth and the western face of the porch at Monkwearmouth. To be carefully distinguished from such windows are the openings of similar form in so many pre-Conquest towers, that are really *doorways*, though it is not always easy to see whither they led. Earls Barton tower has one of these high up on its southern face. On the probable use of such means of access Mr. Micklethwaite's already quoted paper is to be consulted. Of distinctly native and non-Norman character are window apertures of a keyhole shape, with vertical or sloping jambs, that are mostly found in the Lincolnshire towers.

Next may be noticed double belfry openings in towers, so abundant in Lincolnshire and other eastern regions, where a mid-wall shaft is employed. Such openings with a division in the middle are always cut straight through the walls. They may occur in towers of post-Conquest date, but they are of distinct Saxon character. They represent one of four methods in which the wall between two arched openings is sustained by bringing the weight down upon a central shaft or shafts. The earliest method in point of date is to double the shafts, placing one behind the other, so that their two capitals support the whole extent of the load. This occurs in Early Christian work in Italy. The device of corbelling out the capital of a single shaft till its abacus corresponds in length to the thickness of the wall is also Italian, while the same thing is common in German Romanesque. The third method is recessing, and this, which occurs in Advanced Romanesque architecture generally, is specially favoured by the Normans. The fourth method, which may be found in use in various parts of the Continent, is represented in our Lincolnshire towers, and in some other openings of certainly pre-Conquest date, and consists in making the shaft, with or without a capital, support a stone slab, or "through-stone," which is long enough to take the whole thickness of the wall. There are exceptional cases in Saxon work of the employment of the first method of doubling the supports in the direction of the thickness of the wall (belfry stage at Earls Barton), and of using a corbel capital (Sompting, Sussex),* but in nearly every case the single mid-wall shaft and through-stone are employed. How alien this was to the practice of the Norman builders is shown by the awkward shifts they were sometimes put to when they tried to deal with double openings that were not recessed. There are corbel caps in the Early Norman tower at Jarrow-on-Tyne and in the Late Saxon tower at Bolam, Northumberland, but in the superb Norman tower at Eaton Bishop, Herefordshire, the shaft with the two small arches it divides is pushed forward to the outer face of the wall, while behind this sort of frontispiece the whole width of the double opening is spanned by a single arch of ordinary construction. It is really a single opening with a pretended subdivision. The same thing is done more clumsily at Burwash, Sussex, and Tugby, Leicestershire. The through-stone arrangement is, accordingly, an important Saxon criterion, though, like almost every other, it must be employed with caution. For the sake of brevity, in what follows this arrangement is referred to by the summary expression, "mid-wall work."

Double-splayed windows are very often referred to as definite indications of early date. They are both round-headed and circular, the latter occurring most abundantly in East Anglia. It is pressing too far the evidence they afford when they are made to fix a pre-Conquest date for the western wall of the cloisters at Norwich,† which on many grounds should be regarded as early Norman, and this shows that they cannot be made an absolute criterion of Saxon or non-Saxon. We shall be justified, however, in looking on any examples of their use in post-Norman times as a survival, for the Norman builders never seem to have used them in their own country.‡ The central aperture in these double-splayed windows is often cut in a thin stone slab or wooden board. Slabs and boards of the kind are interesting survivals of an early Christian tradition. Specimens in wood remain from Saxon times in the round-headed window south of the tower at Steventon, Beds, and in circular openings at Barton-on-Humber, where the actual apertures for light are a series of round holes, about ⅜ in. in diameter, pierced in the board. At Langford, Oxfordshire, the stone mid-wall slabs of double-splayed windows are cut into the curious keyhole form. The mid-wall slab is cut into an aperture forming a cross at Earls Barton, and at East Lexham, Norfolk.

The question of the double-splayed window is complicated by the fact that in some walls, in all probability of Norman date, there occur openings which show a wide and deep inner splay, and a much shallower outer one, which yet is more than the chamfer of the outer arris of the common internally-splayed light. At Overbury, in Worcestershire, and Ledbury, Herefordshire, there are respectively round-headed and circular windows of this type in walls cut through below with Late Norman arcades. Turvey, Beds, exhibits something of the same kind. Genuine Saxon doubled-splayed windows, as at Barton-on-Humber and at Corbridge, Northumberland, may have their outer splay shallower than the inner, but the difference is not nearly so marked as in the instances just noted. The outer splay in the Ledbury windows might conceivably represent either a shrinkage of the genuine Saxon outer splay, or a development of that chamfer of the outer arris which is common in Norman work. Fig. 6 exhibits the plans of specimens of various window openings, and may be found useful for purposes of comparison.

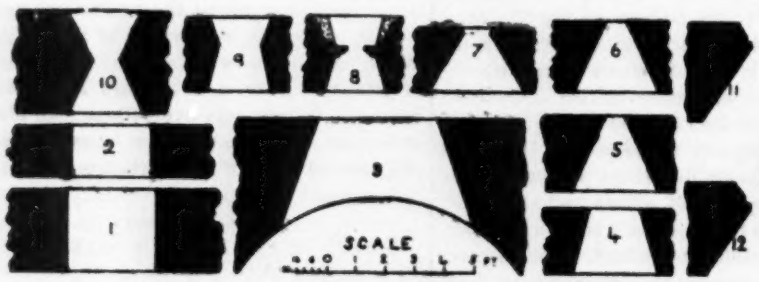

Fig. 6.—Comparative Plans of Window Openings.

1. Clearstory at Brixworth.
2. West Wall of Porch, Monkwearmouth.
3. Splayed Roman at Cilernum, on the North Tyne.
4. West Wall of Church, Monkwearmouth.
5. Killiney Church, Ireland.
6. Chancel at West Hampnett, Sussex.
7. St. Martin, Wareham.
8. Boarhunt, Hants.
9. Barton-on-Humber—western adjunct.
10. Tower Light, Howe, Norfolk.
11 and 12. Ledbury, Herefordshire, and Overbury, Worcestershire (not drawn to scale).

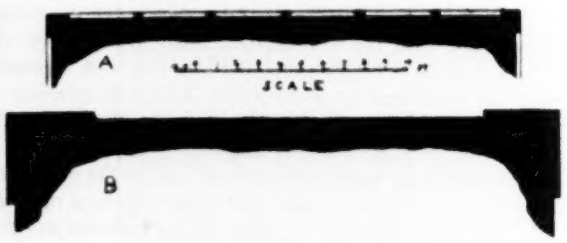

Fig 10.

A. Southern Face of Earls Barton Tower: Plan of Saxon Pilaster-Strips.
B. Western Face of West Malling Church Tower, Kent, with Norman Corner Buttresses.

In regard to the position of openings, it may be remarked that Saxon church doors were very commonly in the north and south walls of the nave. This makes a point of distinction between Saxon churches and those of Ireland, where the western door is almost invariable. Lord Dunraven stated that he only knew of three examples of the south door in ancient Irish churches.*

5. Under the general heading, "Features and Details," may be included the following:—

(*a*) Recessing, with the use of angle shafts and soffit-shafts. Recessing is a development of the core-and-facing technique and is alien to the simpler Saxon practice, but pre-Conquest architecture does not exclude it. The tower arch at St. Mary Bishophill junior, York; the tower (formerly chancel) arch at Broughton, Lincolnshire; the chancel arch at Kirk Hammerton, Yorkshire, are recessed, but are of pre-Conquest character. The recessed western door at Kirkdale, Yorks, is of known pre-Conquest date. There are angle shafts at Broughton and Bosham, Sussex, as well as in some external doorways, as at Kirk Hammerton and Wharram-le-Street, in Yorkshire. Soffit shafts occur in the certainly pre-Conquest churches of Sompting and Bosham, Sussex, and are, or were, to be seen at St. Martin, Wareham, Dorset; St. Botolph, Sussex; and Carlton-in-Lindrick, Notts. They are generally built in courses, but monoliths occur, as at Broughton. Their capitals and bases will be noticed presently.

(*b*) String-courses, plinths, and mouldings. It is not possible to draw a distinction in kind between these features in Saxon and in Norman work, though the Saxon handling of them is comparatively crude, tentative, and illogical. Horizontal string-courses occur commonly on the towers, and at times, as at Worth, Sussex, and Bradford-on-Avon, on the lateral walls. They are square in section or chamfered. One of them on Earls

* An exceptional treatment of a double opening in the east wall of the nave at Wing, Bucks, was illustrated in the *Builder* for December 3, 1898, p. 499, fig. 15. It seems due to an alteration.

† "Norfolk Archæology." Vol. viii.

‡ Dehio and Von Bezold, "Kirkliche Baukunst des Abendlandes," i., 695, after describing the single and double splayed windows, make this somewhat sweeping statement:—"The two kinds are sundered by fixed geographical limits, and each allows of hardly any exception within its own boundaries. The double splay obtains in Germany with Upper Italy and Burgundy, the single is found in the rest of Italy and Gaul (Northern France hesitates) as well as in Spain and England."

* "Notes on Irish Architecture." London: 1875. ii., 26.

Barton tower has a hollow chamfer. A plinth, square in section or chamfered, and sometimes in two stages, is not uncommon at the foot of Saxon walls and towers. In the example at Barholme, Lincolnshire, which there is reason to reckon pre-Conquest, the profile is more elaborate, and includes an undeveloped roll. Around openings the large roll moulding occurs as well as small rolls close together, forming a sort of reeding, as at Bradford-on-Avon, and Bolney, Sussex. Nicks or grooves are also in favour, but we do not find those systematic compositions of rolls and hollows, accentuated by fillets and quirks, which are exhibited round Early Norman door or window openings. Perhaps the most advanced specimens of such a group of mouldings in buildings of pre-Conquest pretensions are to be found at Iver, Bucks, and Stopham, Sussex. These will be illustrated in the sequel. The cornice surmounting the walls of the crypt at Repton, which is earlier than the responds and vaulting, has an enriched profile.

(*c*) Columns, including shafts, capitals, and bases. Of these the following classes may be noticed :—1, Baluster shafts, generally without capitals and bases ; 2, small shafts, with or without capitals, that occur commonly in belfry openings of towers of the Lincolnshire type. These two classes may be passed over here, as they have been recently illustrated in the *Builder** ; but it may be noted that the baluster has undoubtedly Roman affinities, though at the other side it occurs both in the banded and the bulging form in Norman structures, as at Newhaven, Sussex, the west front of Tewkesbury, and at Lindisfarne. Here we will confine our attention to Class 3, columns proper as constructive features of buildings.

The subject of Saxon columns is one of some importance, in view of the theory that the use of large round piers of columnar shape in English-Norman architecture is due to a traditional familiarity with this feature on the part of Saxon builders. As a matter of fact, notices of the employment of such columns in pre-Conquest buildings, as well as actual examples, are singularly hard to find. Wilfrid used columns in the seventh century in his churches at Hexham and Ripon, and in the former case, no doubt, he derived them from the Roman stations on the Wall. The neighbouring mediæval churches of Lanchester and Chollerton possess Roman monolithic shafts in their arcades, and it is conceivable that they are Wilfrid's shafts re-used. The church built by Archbishop Albert at York in the eighth century was also *solidis suffulta columnis*, but we hear nothing of columns in connexion with the later work at Winchester in the tenth century, or at Canterbury.†

Of columns proper actually in use as supports in Saxon structures there are the four in the crypt at Repton, which have twisted monolithic shafts, round discs for bases, like those of Egyptian columns, and square capitals rudely chamfered off to fit the top of the shafts. Besides these there are preserved in the porch of Repton Church two shafts built up of drums with similar capitals, that may have stood originally in the opening between nave and transept. These are obviously, like the crypt, late in the style. The only other examples that can be referred to are the two well-known columns from Reculver Church, which, with their bases and capitals, stand now in the garden to the north of Canterbury Cathedral. These must be either Roman or Early Saxon. Mr. G. E. Fox considers that they are probably Saxon imitations of Roman work ;‡ but considering the limited technical capabilities of the Saxon builders, it is highly improbable that they could have executed such careful work on so large a scale, for the columns are more than 16 ft. high, and the shaft is everywhere within an inch of 7 ft. in circumference. The absence of tapering and entasis is immaterial, for the Roman shafts in the North already mentioned are also devoid of these refinements. It is true that no exact Roman parallel can be quoted to the form of the caps and bases, and that they both look barbarous beside the Attic base of the Roman shaft to be seen at St. Pancras, Canterbury, in a position corresponding to that once occupied by these columns at Reculver. If we assume, however, that the capitals were intended to receive enrichments in gilded bronze there is nothing unclassical about them or the bases, while they certainly have no Saxon affinities. The under-cutting of the lowest member of the neck-moulding should in this connexion not be overlooked, as there is no Saxon parallel. If these columns are to retain their old repute as Roman productions, we are left with the Repton examples as the sole monumental evidence for the supposed predilection of the Saxon builders for this feature. There is no Saxon columned basilica like the Mauritius-Kirche, near Hildesheim in Germany. See fig. 7.

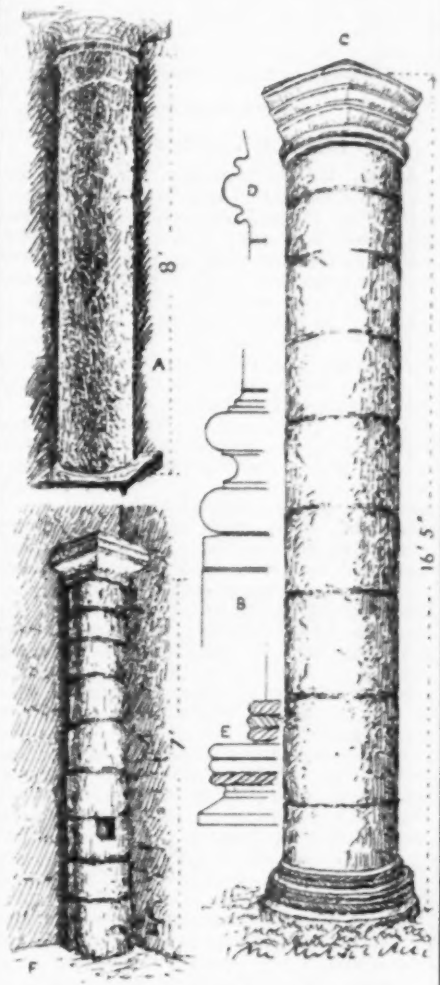

Fig. 7.—Roman and Saxon Columns.

A. Roman Monolithic Shaft in Chollerton Church, Northumberland.
B. Base of Roman Column in Church of St. Pancras Canterbury
C. Column from Reculver Church. D. Necking to Capital. E. Base.
F. Column in Repton Porch, Derbyshire.

A collection of Saxon capitals and bases may be made from the belfry openings in the towers, and with these, already illustrated sufficiently in the *Builder*, may be associated some crudely-shaped cubical caps on the angle shafts in recessed arches. The origin of these must be sought in German rather than in Norman models. The cap of the soffit shaft at Sompting (fig. 8) is unique and interesting. A word may be added about a form of base, not uncommon in Early Norman work, which has sometimes been claimed as Saxon. This is the so-called bulbous base, which can also be used, as in the slype at Worcester, as a capital. It occurs in the belfry opening of the pre-Conquest tower at Dunham Magna, Norfolk, but in almost every other case we find it in a Norman connexion. It is occasionally met with in the Duchy.

(*d*) Imposts, on the piers of chancel and tower arches and in the form of through-stones in belfry openings, are common and at times characteristic features. The plain square, or the more usual chamfer, is equally well represented in Norman and even in Roman work. The hollow and the quirked chamfer introduce varieties. The former does occur as an unimpeachable pre-Conquest feature in the window in the east wall of the nave at Wing, Bucks, and appears in the chancel at Deerhurst and the belfry at St. Peter-at-Gowts, Lincoln. It occurs, too, on one of the string-courses at Earls Barton tower. Of the quirked chamfer the writer knows of no instance in work that is certainly Saxon, and the examples of it in towers of the "Lincolnshire" type may be

Fig. 8. Impost and Cap of Soffit Shaft, Tower Arch, Sompting.

due to a Norman chisel. On the other hand, imposts in the form of huge trapezoidal blocks, as at Wittering, Northants, and Market Overton, Rutland, are unmistakably Saxon, as likewise those apparently formed of superimposed slabs (Barnack, Northants ; Miserden, Gloucestershire). Moulded imposts must be judged by the character of the work and its surroundings. A few specimens are given in fig. 9. That at

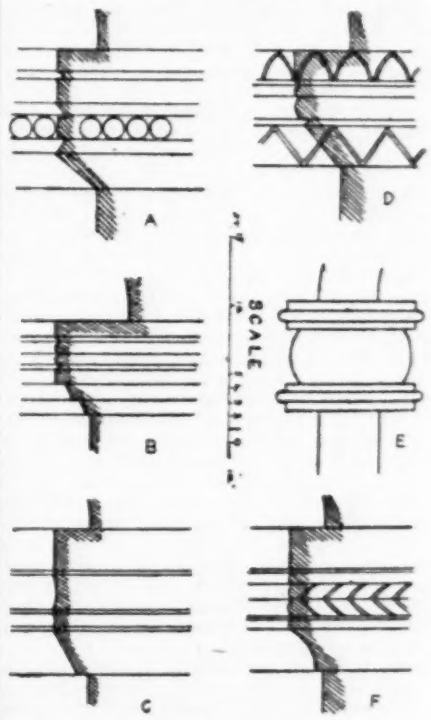

Fig. 9. Moulded Imposts.

A. Coln Rogers, Gloucestershire : Chancel Arch.
B. Howe, Norfolk : Tower Arch.
C. Deerhurst Chapel : Chancel Arch.
D. Pattishall, Northants : Chancel Arch.
E. Corhampton, Hants : North Door of Nave.
F. Daglingworth, Gloucestershire : South Door of Nave.

Corhampton (*e*) from the blocked north door of the nave is, on a small scale, like the grand impost of the tower arch at St. Benet's, Cambridge. Deerhurst Chapel (*c*) exhibits the timid Saxon grooving. The other examples are more advanced, but even that at Coln Rogers, Gloucestershire (*a*), is in Saxon surroundings, and the arch and jambs are constructed with through-stones.

(*e*) Buttresses and pilasters. These supply us with the best of all the criteria under c n-

* August 6, 1898, and December 3, 1898.
† See the "Winchester" Volume of the Archæological Institute, 1845, and "Canterbury Cathedral," Lond., 1845, both by Prof. Willis.
‡ *Archæological Journal*, liii., p. 355

sideration. It is a safe general principle that Saxon walls are unbuttressed while Norman builders favour this feature, but there are numerous exceptions that must not be ignored. Thus the earliest churches at Canterbury, St. Martin (chancel) and St. Pancras, possess buttresses coeval with the fabrics, and such occur, too, at the corners of the apse at Brixworth, while there are plenty of unbuttressed Norman walls, as at Abinger, Surrey; Kippax, Yorkshire; Gillingham, Norfolk, &c. The distinction shows itself in the use by the Saxons of narrow pilaster strips, decorative rather than constructive in intent, while Norman walls are strengthened by broad but shallow buttresses that appear first, if anywhere, at the corners of buildings. It is instructive to compare the plans of the faces of two characteristic examples of the styles—the Early Norman tower of West Malling Church, Kent, and the Saxon tower of Earls Barton (fig. 10) What appear in the latter plan like clasping corner buttresses are really long-and-short work quoins, in which the "short" pieces are not cut back for plaster, so that in elevation there is no pilaster-like effect. The pilaster strips on the face of the wall are quite independent of the quoins, though when the quoining stones are cut back and the plaster brought up to the vertical edge thus made, as at Barton-on-Humber, the quoins present the appearance of pilasters. Regarding the pilaster strips as independent of the quoins, we may note about them the following. At Earls Barton they measure only 4 in. in width, and in general are not more than 6 or 7 in. across. They are usually built with long upright stones and "short" or bonding pieces alternately, but sometimes with small stones. They start either from a plinth, sometimes with a step-like footing, as at Bradford-on-Avon, or else, as at Stanton Lacy, Shropshire, from projecting corbels, and end at times under a horizontal string-course either abruptly or with an enriched heading as at Langford, Oxon. Strips half-round in section occur on the tower at Sompting.

At Earls Barton, Wing, &c., they are joined at the top by round or triangular-headed arches; and at Repton, Corhampton, and elsewhere they run up under the eaves, but curve out a little on each side at the top as if to prepare for the springing of arches. At Stanton Lacy they end abruptly at different levels on the wall in a puzzling manner. One notable peculiarity here and at Corhampton and Barholme, Lincolnshire, is that a strip ascends the wall directly above a lateral doorway. Strips of the kind, usually square, but occasionally semi-circular in section, are also often used to surround doorways (Middleton-by-Pickering, Yorks), or belfry openings (Monkwearmouth and the Tyneside Saxon towers), or chancel and tower arches (Corhampton, Skipwith, Yorks); and this treatment, which may be compendiously termed "strip-work," is a distinct pre-Conquest symptom. It is worth while giving some special attention to this feature, because it is the only one which is a really unfailing test of pre-Conquest work—at least the writer knows of no instance in which a true narrow pilaster-strip is found on work that is non-Saxon. At the same time it must be granted that there are transitional forms in which the pilasters become wider, as at Langford, or clasp the corners, as at Tichborne, Hants. In both these cases these bastard Saxon pilasters are, however, connected with double-splayed windows, which go far to vindicate the pre-Conquest character of the walls in question.

6. It is not practicable to enter into the subjects embraced under the heading of ornament, for they could only be treated fittingly in connexion with the carving on Saxon tombstones and crosses, and the designs on Saxon coins. There are no criteria of style to distinguish Saxon from Early Norman figure and animal carving, but local setting and special details enable us to claim as Saxon, *inter alia*, the figure carving at Monkwearmouth, Hexham, Bradford-on-Avon, and Daglingworth; the mutilated roods at Headbourne Worthy, and Breamore, Hants, and Bibury, Gloucestershire, as well as fragments of animal forms at Monkwearmouth, Deerhurst, St. Benet, Cambridge, &c.

Apart from figure and animal carving, it is now recognised that interlacing work is no sure test of pre-Conquest origin; and the date of foliage and vine scrolls, which occur in Christian art of almost every period, is hard to fix. The scroll-work on the jambs at Britford, Wilts, is certainly Saxon, but that on the south door at Ledsham, Yorkshire, may seem to some more doubtful. It is uncertain whether, in the present state of our knowledge, either figure, animal, foliage, or geometrical ornament, can in itself be used as a test of pre-Conquest date. For rudeness, at any rate, Early Norman carving can be found to match anything ever perpetrated in other styles. The ornament called sometimes the "horn-butter-spoon" is really a variety of the enrichment formed by rows of upright leaves which has been in use from Assyrian days. It is not observable in Norman work on the Continent, and may be regarded as in character Late Saxon, though the archivolt of the tower arch at Stow, where it occurs, looks like an Early Norman erection on the Late Saxon jambs.

LETTER FROM PARIS.

Among the innumerable congresses for which the Exhibition has furnished occasion, that of "Art Public" has been one of the most interesting, and may prove the most productive in practical results. It was organised with the support of the Paris Municipality, and set itself to consider the whole question of what may be called the æsthetic of cities, and to lay the foundations for an International understanding for checking the effects either of official vandalism, or of the ignorance or indifference of private owners, in regard to all relics which are of historic value and importance. A special point worth mention is that a resolution was passed recommending that every Government should safeguard the monuments of the past by an enactment, with penal clauses to be put in force on its violation. The Congress contemplated also that such legislation should extend to the preservation, in special cases, of the general grouping and character of an ancient city, so as to prevent, for instance, such a destructive work in this respect as the Municipality of Avignon are carrying out, and to preserve intact such remains of ancient cities as are represented by the older portions of Carcasonne.

In considering also the subject of ill-advised restorations, by which the value of ancient monuments is too often destroyed under the pretence of preserving them, the Congress recommended that the greatest prudence should be practised in operations of this kind, and that in place of the often valueless restorations (*restitutions*) of such monuments, operations should be confined to simply consolidating them against further decay, with care to select, in doing this, the materials or processes most likely to be durable. Also, whenever there seems to be an unavoidable necessity to remove an ancient building, the Congress recommends that careful photographs should be taken of the building and its surroundings; and the same in the case of any unavoidable repair which might alter its original appearance. Recalling a resolution passed at the Congress at Brussels, they have also called upon public authorities to take measures to check the continually increasing disfigurement of streets and buildings by commercial advertisements. The Congress of Public Art has worked hard, and its recommendations are important, and it has had at all events the effect of leading to the formation, in Paris, of a committee to endeavour to promote the carrying out of the objects aimed at, and which will remain in office until (or unless) [the hoped-for international legislation is realised.

M. Bonnat, Conseil des Musées, has presented to the Minister of Fine Arts his annual Report, in which he again draws attention to the necessity of securing our art treasures from danger of fire. The Government seems at last disposed to listen to these repeated demands and to withdraw the Ministry of the Colonies from its quarters in the Pavillon de Flore, which will then be entirely given up to the Louvre Museum.

It seems to be now officially decided that the Exhibition will be definitely closed on November 5, and they are already considering what is to be done with the different establishments comprised in it. Naturally the ephemeral structures of the Esplanade des Invalides will disappear, to give place to a large square connected with the Champs Elysées by the Pont Alexandre III. The palaces of the Rue des Nations and the buildings of the Rue de Paris and the Trocadéro will also be demolished, as well as the galleries on each side of the Champ de Mars. It is not known yet whether the Municipal Council will preserve the Galerie des Machines for future use. Perhaps it will be decided to suppress this immense edifice in order to leave the façade of the Ecole Militaire, the work of the architect Gabriel, to take its place as before at the extremity of the Champ de Mars, which will also become a public square. The palaces on the Champs Elysées will, of course, remain; the Large Palace for exhibitions and State celebrations, while the Small Palace will form the Municipal Luxembourg, and the gardens formed around them for the Exhibition will be preserved and prolonged to the Pont de l'Alma. The Municipality propose also to preserve for horticultural exhibition the great conservatories built on the Cours la Reine. The so-called Porte Monumentale, which is so much out of keeping with the general character of the Place de la Concorde, will be demolished.

The chapel in the Rue Jean Goujon, just completed, will contain fourteen commemorative monuments, among which we may mention especially that designed by M. Pascal in memory of the daughters of the Comte de Chevilly, who both perished in the Bazaar fire. This monument, which is very simple but very expressive, consists of a basement with two pilasters, and adorned with shields bearing the dates, and having in the centre a console, surmounted by the head of an angel. Over this is a kind of altar table, on which is a coffer with panels, decorated with bas-reliefs and armorial bearings. The whole is crowned by a cross, at the foot of which are seen two doves.

It appears that the grand banquet recently offered by the Government to 22,000 mayors is to be commemorated both by the painter and the medallist. M. Roll has been commissioned to paint an immense picture of the scene, which is intended for the Museum at Versailles. M. Vernon is to execute a commemorative medal of the fête. Another medal, in commemoration of the opening of the Great Exhibition, has been commissioned from M Naudé.

M. Jules Machard, a painter of considerable merit, has died at the age of sixty-one. He studied at the Ecole des Beaux-Arts under the direction of Signol and Hebert, and, like all the pupils of the Ecole, painted a great many mythological subjects. He gained the Prix de Rome in 1865, and medals at various exhibitions. Among his principal works may be mentioned "Narcisse a la Source," which is in the Museum of Chartres, "Psyche Rendue à la Mort," and "Le Passage de Venus devant le Soleil." For a long time past, however, he had devoted himself to portraits of ladies, in which he showed great delicacy of style and execution, though in his later years this quality had degenerated into a certain weakness and over-refinement, and his earlier works will remain his best title to reputation.

THE ARCHITECTURAL ASSOCIATION:

OPENING MEETING OF SESSION.

The first ordinary fortnightly meeting of Session 1900-1901 of the Architectural Association was held on Friday evening last week in the Meeting-room of the Royal Institute of British Architects, No. 9, Conduit-street, W., Mr. W. H. Seth-Smith, President, in the chair.

The minutes of the last meeting having been read and confirmed,

Mr. G. H. Fellowes Prynne, past President, moved the adoption of the committee's report and balance-sheet for Session 1899-1900. The past Session had been a very successful one to the Association. The membership had steadily increased, and the attendance at the ordinary general meetings had been more satisfactory, while some of the discussions had been very valuable. Financially, the Association stands on a sound footing. The nett increase of members at the end of last Session was sixty-one, and the total membership at that time was 1,308. Eighty-nine new members were elected, ten members rejoined, and the losses by death, resignation, &c., amounted to forty-three. The new common room has been well used by members and students, especially during the evenings. The Sub-Committee appointed last Session for the purpose of compiling a list of buildings and monuments of interest in London and the provinces has been considerably augmented, and "Consuls" have been nominated to fifty-five London districts. These gentlemen are now engaged in the compilation of the lists, so

far as the Metropolis is concerned, the provincial districts being deferred until progress has been made in London. The Register of Assistants has been even more largely used than hitherto, and has again fully proved its usefulness both to architects and assistants. The registration fee to non-members has been increased to half-a-crown.

Professor R. Elsey Smith seconded the motion, which was agreed to.

On the motion of Mr. Hampden W. Pratt, Hon. Treasurer, seconded by Mr. Prynne, a vote of thanks to the hon. auditors, Messrs. W. E. Davis and E. Greenop, was agreed to.

The President then proposed a vote of thanks to the Royal Institute of British Architects for the ninth annual grant of 100*l.* towards the educational scheme of the Association. The grant was of great help to the Association in its work.

The motion having been heartily agreed to,

Mr. G. H. Norman was elected a member.

Mr. G. B. Carvill, Hon. Secretary, having announced some donations to the Library, said he had to propose a vote of thanks to Mr. Samuel Gardner, of Harrow, for a valuable donation of photographs illustrating English architecture. The photographs are now on view at No. 56, Great Marlborough-street, and special cases have been made for them.

Prize List.

The vote of thanks having been ageed to,

The President distributed the prizes, medals, and certificates gained during the past session. The following is the list of successful students:

A. A. Travelling Studentship, value 25*l.*, and silver medal, C. H. F. Comyn; A. A. Medal and Ten Guineas, S. Towse, Hon. Mention, J. E. Forbes; A. A. Essay Prize, J. Maclaren Ross; Architectural Union Company's Prize, value 10*l.*, P. J. Turner; The Banister Fletcher Bursary, value Twenty-five Guineas, and medal, A. Stratton; Andrew Oliver Prize, F. C. R. Palmer; Arthur Cates Scholarship, L. W. Ensor.

Lectures, Division 1.—C. M. Crickmer, Prize value one guinea, and Scholarship value three guineas.

Lectures, Division 2.—T. Bee, Prize value two guineas.

Studio, Division 1.—M. Skinner, Prize value one guinea; S. H. Goodwin, Prize value 7*s.* 6*d.*, and Certificate.

Studio, Division 2.—A. A. Carder, Prize value two guineas.

Lectures, Division 1 (Book Prizes).—Greek and Roman Orders, S. V. North; Elementary Construction, C. M. Crickmer; English Architecture, C. M. Crickmer; Mediæval and Renaissance, C. M. Crickmer; Elementary Physics, L. W. Ensor; Plane and Solid Geometery, L. W. Ensor.

Lectures, Division 2 (Book Prizes).—Materials, C. H. Gage; Construction, T. Bee.

Elementary Class of Design.—Prize, value three guineas, and Bronze Medal, A. Durst; Certificate, A. A. Carder; Hon. Mention, M. J. Dawson.

Advanced Class of Design.—Prize, value five guineas and Bronze Medal, H. M. Cautley; Certificate, J. E. Forbes; Hon. Mention, C. H. F. Comyn.

Extra Subject.—Mensuration and Land Surveying (Book Prize), H. E. Rider.

President's Address.

The President then delivered the following address:—

Fellow Members of the Architectural Association,—In one of Lord Rosebery's happy speeches, when receiving some civic distinction, he begins by saying that he was full of an uneasy feeling due to a sense of unworthiness which accompanied it. I assure you, gentlemen, I entertain that sentiment tonight when I thank you for the honour you have conferred on me by electing me to the chair.

My first word must be one of congratulation upon the prosperous condition of every department of our Association. We now number 1,291 members, and no one taking the trouble to read the annual report can fail to observe how great and varied is our work, how well it has been maintained, and how rapidly developed. There has been uninterrupted progress in the growth of our membership from the first. That prosperity during the past two years has been in no small degree due to the enthusiasm and unwearied exertions of the retiring President, Mr. Geo. H. Fellowes Prynne (ably assisted by the energetic Committee and other officers), who, during his term of office, notwithstanding his large practice, took the chair, not only at every general committee, and at all the ordinary meetings, but also at most of the innumerable sub-committees. His admirable epitome of the history of our educational work in the past as given in his first presidential address, relieves me of that difficult task. Such devotion forms a record surely even in the Architectural Association, to serve which nearly every well-known London architect, and many in the provinces, have cheerfully given so much time, thought, and experience. I hope the Association may before long be in a position to realise his workshop scheme. It is only want of space which has so far hampered what our students much need in this direction.

It is my duty to record our sense of loss in the death of six of our members during the past session.

On the whole, the students have shown commendable zeal by supporting all branches of our work, but it is necessary to warn some that no reading at home will make up for irregular attendance at the Studio and the classes. System is as essential to study as to practice, and must be adhered to if we are to become proficient. Our Registrar reports that when business is brisk in London he has no difficulty in finding a good berth for every well equipped young man when he emerges from the student stage, but the register contains too many who lack a knowledge of construction or the ability to design, and who realise too late their neglect of precious opportunities for making themselves competent assistants, and, in due course of time, capable architects. On the other hand I would advise those working in the classes not to slacken their home work or to relax their exertions as the session advances; some students commence with enthusiasm, but as the session progresses their earnestness appears to decrease.

Our School of Design offers the greatest attraction and the most unique opportunity for cultivating skill and taste. The subjects as you know are set, and the designs are criticised by a large number of the most artistic and able architects in London; nor can I refrain from urging our students never to miss the spring or summer visits, by which we arrange to see the best old work as well as the most important buildings in progress of erection. Can anything be of greater value to all of us, old or young? The power of giving public expression to our thoughts and so of eliciting the ideas of other men is one to be cultivated by every young man, and members will find a fitting opportunity for this side of their education in our Discussion Section. They will at the same time be surprised at the amount of knowledge they derive from the debates. I scarcely think our "A.A. Sketch Book," in which the best-measured work of the members is published in quarterly parts, and which makes such a valuable book of reference in any architect's library, is sufficiently well known. We shall be glad if some of the members are disposed to encourage the energetic honorary editors, Messrs. W. A. Pite and W. G. B. Lewis, by subscribing to it this year. The library needs better support. Students should not be afraid of borrowing certain books on account of their large size. Perhaps many of our young men are too busy in their evenings to attend more frequently than they do the papers read to us by the best men on the various subjects selected. Let me say they little realise their loss every time one is missed. Such papers generally represent the experience of a lifetime compressed into an hour's discourse and given gratis. The generous way in which these Esaus part with their birthright to their hungry younger brethren often astonishes me. No greater compliment could have been paid us than that Mr. Florence, our senior delegate to the International Congress of Architects in Paris, was on one occasion called upon to occupy the chair of that distinguished assembly. It is also gratifying to note that twelve of the nineteen awards by the International Art Committee to English architects were made to members of the Architectural Association. Eleven of our members have served in the Transvaal War, and I regret to say that one of these volunteers lost his life there.

Gentlemen, we are entering upon the session which will see the commencement of the twentieth century. It is the privilege only of a very small minority of mankind to experience the emotions which such an occasion must inspire. To a much smaller number has it been given to review a century such as that to which we bid farewell. Shall we be safe in defining true progress as the increase of the sum of human comfort and happiness? If so, surely the past century has seen more progress not only than any previous hundred years, but perhaps than all previous centuries put together. The root of this progress has been the practical application of the central truth of Christianity, viz., the universal brotherhood of mankind, and from this root has sprung universal education, and to education may be attributed all the splendid achievements of modern science. But amid this phenominal activity in science, has art been asleep? or has she made any corresponding contribution to human happiness? Has it been a century as fertile in the production of poetry, painting, sculpture, and architecture as in the discoveries and inventions of science? Perhaps not. This is an interesting inquiry, and my own belief is that the intellectual activity of the century has shown its influence in art, as well as in science, though not in the same degree. A century which has produced the great and essentially English water-colour school and such truly poetic schools as are best represented by Corot and Millet in France, and by some perhaps equally great Dutch and English artists, notably Turner, cannot be said to have been indifferent to art. Poetry and architecture, too, have been active enough in all conscience, even if wanting in concentration and consequent power. Music may be said to have triumphed; we are fast becoming a musical people.

The faculties and habits of mind which respectively develop science and create art are essentially different; the one class of mind is objective, the other subjective. The one is inquisitive, familiar, and practical in her friendship with Nature, the other is reverent and imaginative. The two classes of mind, both Nature's offspring and complements of one another, may be living their own lives side by side in an age in which the mind of the vast majority of men is centred upon science and its material benefits, but that age is in the nature of things unlikely equally to encourage, though it may pave the way for, the fine arts. Do not misunderstand me here. Art is not a rival of science, but it is a higher law regulating and a feeling pervading every invention. We are on different ground, however, directly we deal with the applied art of architecture. Here we shall find that science has always been the origin of its greatest departures. The arch and its multiform developments and resultant features are ancient witnesses to this truth. If we consider, moreover, the extent to which education and sanitary science have multiplied and specialised the buildings which we are now called upon to design, we shall recognise at once how enlarged are our functions, and how likely it is that the twentieth century will see still greater developments.

As regards monumental architecture, the imperious command of one great patron has given place to the more imperious directions of a co-operative body themselves merely fiduciaries of the will and purse of the community. But the wants of this co-operative community, if not so colossal, are infinitely more numerous and varied. They call for town halls, municipal offices, colleges, schools, polytechnics, hospitals, asylums, workhouses, electric lighting stations, baths and washhouses, and what-not. Surely, gentlemen, there is no room for disquietude as to the future of architectural practice if our training is equal to the demands of the public and if the policy of our profession is broad and well directed. All these are modern requirements, and show how really changed are the conditions of our work, how varied and how complicated that work has become, and how impossible it is to put the dial of time back, or to depreciate the influence of science. Why should we struggle to cast the mould of future architecture to the form of our own narrow and short-sighted prejudices? Our duty is clear and unmistakable, namely, to accept, and accept joyfully, the altered conditions of our age, and to do what our hand findeth to do in a spirit of devotion to the present and confidence in the future. Taking its origin in the knowledge of building construction, and inseparable from it, the essence of architecture is, nevertheless, beautiful design, design full of thought and feeling. This differentiates it entirely from mere construction, however rude or however scientific. This constitutes our art. Design is to building what religion is to life, what poetry is to language, the indefinable and spiritual, the changeless element, the one thing needful. It leaves the

prose and business of our calling essentially what they were, every department of our buildings worthy of our close and vigilant care, but makes us conscious of a higher order of desire and affection that guides us through all these and lifts us above commercialism. The latter is the instinctive faculty common to all, the former (art) is the conscience. The man who has this spirit is alone the true architect, and the ideal society of architects would be one from which all others would be excluded. It is the decree of Providence, however, that both shall grow together in spite of our rough tests, which may, it is true, do much, but can never be infallible. We need not regard engineers or builders as serious rivals in our field so long as we are true to this ideal, and insist as far as practicable on its possession and its cultivation by every man who bears the title of architect.

Allow me to utter a note of warning to our students against pinning their faith exclusively to any of those schools of thought which lack the sense of proportion and tend just now to lead us away from the broader fields of systematic study, schools which on the one side insist that we should be content to be craftsmen and builders, and, on the other hand, appear to regard draughtsmanship and design as the be-all and end-all of an architect's training. None can know too much of construction, none can draw too well, but bear in mind Sir Joshua Reynolds' remark: "How difficult it is for the artist who possesses this facility (of accurate and rigid declination) to guard against carelessness and commonplace invention is well known." How frequently we see this truth illustrated in Royal Academy pictures by the cleverest men.

Then there is the non-traditional school, insisting that we should divest our minds of the forms of past work and invent our own. All these schools have originated in the gross neglect of training in draughtsmanship in some, the equally egregious want of practical knowledge, or a slavish copying of ancient architecture, in others. They are each emphasising all important truths, and wherever great truths are enunciated, be they only a fraction of *the verities*, we should receive them gladly. As a matter of experience it will be found that the full truth lies somewhere between these extremes, and that the best architect will be both a wise and experienced builder and a good draughtsman and designer. If he be great enough to add archæology and other subjects he may be a happier man, but not necessarily a better architect.

It is not to be expected that many men should be equally strong on the scientific and artistic sides of our calling; nevertheless there is no excuse for the existence of two classes of architects which specially bring the profession into disrepute. On the one hand those who are grossly ignorant of structural work and confine themselves to the study of design from the artistic standpoint, and on the other hand the men who have technical knowledge, but who ignore architecture as an art. It is difficult to say which of these classes does the most harm.

The key-note of the best work of our younger men is enthusiastic love of beauty in form and colour (irrespective of the amount of remuneration its pursuit may bring), thought as to the capacities of the material in hand, and individuality in feeling. It is fearful of the pedantic and the commonplace, faults so often associated with too academic a training. Can we wish for a better spirit? Personally I have no fear of the future of English architecture on the score of pedantry. Our lithic language savours perhaps too broadly of our national characteristic, individual freedom. We are apt to forget how much our literature, and even our fine arts, owe to exotic sources. We can surely afford to be as tolerant professionally as we are nationally and imperially.

The antidote of academic uniformity lies in the study of nature. The man who keeps his mind in harmony with nature will have recorded, however unconsciously, the great principles underlying stability and composition everywhere observable in nature. These principles, violated as they so often are in our buildings, will be instinctively detected and condemned by a true artist, to whatever branch of art he may belong. An architect imbued with these principles will not advise his clients to erect a severely classic style of house in a very rural spot. He will select a more picturesque type as more harmonious with its surroundings. It is the withdrawal of all Nature's conditions and restrictions which makes a more formal and dignified style more suitable to city architecture. Of course, if your building approaches the scale of a palace, and the interval between it and unfettered nature can be disciplined by formal and architectural gardens, it is another thing. So far our sense of fitness has been so true that English country houses are renowned for their appropriateness to their environment. It is this contact with nature which, with her infinite variety appealling to the equally diverse character of the human mind, will preserve our individuality of taste. I submit that it is the neglect of this study in France which has done so much harm to its rural architecture. The French architectural school is one of exclusively civic and monumental artists. It is at home among man's creations, it appears to have no sympathy with the works of Nature. On the other hand, Mr. Warren in his paper read before the last annual convention of the American Institute of Architects, on the influence of the French school of design upon architecture in America, most justly commends this school for its insistence on composition, its excellence of proportion and mass, and its mastery of monumental planning. These points are admirably exemplified in the two new palaces in the Champs Elysées, and we shall do well to study them carefully. A notable feature of our people has always been to preserve a national character in all our institutions and in all our schools of art, while freely adopting such features of other systems as commended themselves to us. It has always been so with our architecture; it is so to-day; and this consideration warrants confidence that our architectural profession will not blindly follow any school, but evolve one of its own.

It is upon a wide basis that the Architectural Association curriculum has been founded and has worked so well. The better education of the profession is our mission. It is a mission which finds support and sympathy from every school of thought among us, and it may be safely said the Architectural Association has not an enemy, scarcely a critic. Our watchword has been—and will, I hope, ever be—*continuity of policy and progress with the times.* How are we fulfilling this mission? Our educational work is, as you know, conducted wholly in the evening; there are 200 students attending our courses, and about 200 more of our members may be said to be still in the student stage of their career. The characteristic of our Architectural Association seems to be, to use the pithy expression of a popular past-President, *the power to enthuse.* But enthusiasm, like others among the best of things, is a dangerous endowment unless well directed; it has led many a man to be impatient of that strenuous effort for the mastery of the prose of building which is so essential; but this patient and sometimes irksome work will alone give him a solid satisfaction, without which enthusiasm for art must wither and die in the failure of his practice. As to the need for the study of the history of design—a point much debated just now—I venture to reiterate the words of the reader of an able paper two sessions ago. Mr. Reginald Blomfield then said what I believe to be profoundly true, and I quote him because we all regard him as a good architect and because I cannot put the thought into better language:—

"In architecture, the oldest of the arts, we can only consider ourselves on safe ground so long as we keep in touch with what has actually been. The days of the craftsman working independently, yet in unconscious unison, ceased when the choice of styles arose. He tasted of the tree of knowledge, and henceforth to his knowledge of the craft had to be added the responsibility of conscious judgment if he was to undertake, I will not say architecture as it might be thought to beg the question, but building of any sort. Because, in any building nowadays, a man has to use one method of expression in preference to another, and implicitly in this there is raised the whole question of selection. Now this responsibility proved too much for the simple craftsman, as you may see from the blunders in design which abound in more ambitious Jacobean works; and it was only a question of time how soon there should arise the man who had sufficient training and intellectual capacity to enable him to discriminate between good and bad, to enable him to grasp the logical coherence in expression which is an essential element of architecture. As soon as such a man arose the matter was settled for good or bad. The architect ceased to be a craftsman in the technical sense, and what might be lost in craftsmanship was assuredly gained in architecture. I think, therefore, that this critical function of an architect, this detachment from the actual details of craftsmanship which chafes the enthusiasm of some of by no means the least gifted of our younger men, is of the very essence of his work. His craftsmanship must be of a wider range, it must embrace full knowledge of the past; it must rest on a constant habit of analysis of the best methods of expression in building."

One thing on which all who are experienced in the training of the human mind are agreed is that a good *general* education must precede special knowledge. This is an axiom which guides your committee in their educational work. It finds expression in the large number of subjects we provide, all of which we consider it of importance that every architect should be acquainted with. It is essential that our curriculum should aim to be comprehensive, to lay a good foundation of general architectural education which will fit men to adapt themselves as readily as possible to the special line they may wish, or be compelled to adopt. If your foundation is not sufficiently deep and wide, you will sooner or later show signs of settlement.

So much for our successful past, and hopeful present. I will now with your kind indulgence deal with what I am persuaded we ought at once to take in hand. I refer to the establishment of *day courses* of instruction, and I will give you reasons, which I think will commend themselves to you as indisputable. Not that I claim originality for this idea. It has, like almost every other subject which affects the profession, been discussed many times by your committee, but dismissed for the time being mainly on financial grounds.

In the first place, our system of pupilage—necessary and excellent as it is in principle—is still admittedly and radically faulty, from the standpoint both of the master and of the apprentice. The former is too busy to undertake the pupil's education; it is as much as he can do to give him the run of his office, to allow him to spoil material and waste his paid assistants' time in gleaning what knowledge he can. The latter finds himself irrevocably bound to serve at least three years, even if he discovers within the first few months that he has mistaken his vocation. A two years' full course of study in a *purely architectural college, controlled entirely by experienced architects*, would obviate both these objections to the present system without in the least endangering it, and I am sure that most architects in practice, and probably every Fellow of the Royal Institute of British Architects would, as an encouragement to a movement which would secure useful servants from the first, not only agree to accept a rather smaller premium, but probably also to a less lengthy apprenticeship. The pupil, on the other hand, would as a rule discover during his first two or three terms in such a school whether he was fitted for the work, and would be free to drop its further pursuit without loss of time or premium. It would be a truly advantageous arrangement to both parties.

Another cogent reason is that we already have the premises needed for a start, most of the apparatus and some of the staff, and that consequently we can run the school economically, and in about three years' time it ought to become a substantial source of revenue, enabling us to do what we have of late proved we cannot do on our present income, viz., build or rent premises to suit our ever-growing needs, and in a neighbourhood worthy of our position. If we fail to seize this opportunity others will certainly do the work which I believe to be the great mission of the Association. With the exception of the Victoria University at Liverpool, I believe King's College is the only institution in this country which has an architectural day school, but King's College architectural course appears to be a department of what is really an engineering school. May I here say how warmly we congratulate our late instructor in classic architecture, and present Vice-President, Mr. R. Elsey Smith, on his appointment as Professor of Architecture to that College. We should have no difficulty, I am sure, in obtaining guarantees of financial support for two or four years during which we must expect to make a loss. This was the method pursued so successfully in 1891 in launching the present curriculum.

Our standard of training is far behind that of other countries. The paragraph in Messrs. Florence and Balfour's report of the drawings exhibited at the Paris Exhibition is not flattering to our English pride. It reads thus:—

"Your delegates could not help comparing the skilled design, the able execution, the artistic feeling, and patient care displayed in these drawings with the careless and slap-dash effects which seem to be sufficient for the student of the present day in England."

No man has done more for architectural education in this country than Mr. Arthur Cates, and his recent generous offer of 250*l.* towards a scheme, which unhappily fell through, for the rebuilding of our premises, is only one of many evidences that he is a true friend to this Association. Let me read you an extract from his very interesting and valuable article in the June number of the Royal Institute of British Architects' *Journal*, on "Architectural Education in the United States of America":—

"Attention has from time to time been invited to the great advance made in recent years throughout the United States in the organisation and development of a complete systematic course of architectural education. . . . In the late 'forties' and early 'fifties' many smart young architects went from London to the States, and there speedily attained to good and influential positions, prospering greatly; but as London did not afford any opportunity for sound systematic artistic education, the young American student did not come here for the instruction which he sought, but a steady stream of earnest aspirants flowed to Paris, where, in the ateliers of distinguished architects, and in the Ecole des Beaux-Arts, they found the instruction and guidance they desired. This special training of those who now occupy leading positions in the profession, and the developments which have followed the persistent teaching and exertions of Professor Ware, have so influenced the progress of education in the States that the student, if he has not already done so, may soon hope to find at home sources of instruction which will render the course in Paris less necessary, and even a comparatively superfluous luxury. It has even been suggested that at no distant period, the ambitious English student who may desire to prepare himself for the effective practice of architecture, and go through a complete course of technical and artistic training, may find it expedient to resort to one of the American Universities, and there obtain that thorough education which sluggish indifference of educational advancement, and blind adherence to the antiquated and effete system of pupilage, does not afford him here.

The Massachusetts Institute was opened in 1865. . . . For the department of architecture there is a special staff: of a professor of architecture, a professor of architectural design, two assistant professors, an instructor, a lady assistant, and a teacher and lecturer of design, the necessary instruction in other subjects, such as mechanical and freehand drawing, mathematics pure and applied, geometry, perspective, stereotomy, languages (French and German), business law and relations, and the other items of the curriculum, being given by other members of the professional staff. This architectural course aims to prepare the students not only for those years of work as subordinates, when accuracy, rapidity, and taste in drawing and design, with accurate knowledge of detail, will be most useful qualifications, but also for their subsequent independent career, when sound technical knowledge will be most important.

The full course extends over four years, the first being devoted to those preliminary studies which are essential to form a sound basis for the strictly professional course of the three succeeding years, in which the instruction comprises the study of construction and materials, of building processes and professional practice, of composition and design, and the history of architecture. The course is arranged to meet the needs of those who are commencing their professional studies, as well as of experienced draughtsmen who desire to make up deficiences in their training, or to qualify themselves for undertaking the responsibilities of practice. During the entire course there is regular instruction in freehand drawing, that of the last year being from life. For three years the students are continually engaged upon architectural design, each student's work being examined and criticised before the classes by a jury from the Boston Society of Architects. The studies are not limited to the University course: travelling students and measured drawings as 'envois' from Rome, Florence, Bologna, &c., and a large number of graduates continue their studies abroad; a year of study and travel in Europe forming an excellent continuation of the regular course, especially when the studies are properly directed under scholarly supervision. Study in the vacation is not overlooked; there is a Summer School of Architecture, which last year made a very profitable tour in Europe. These particulars of the development of systematic education apply in all general features, not only to the Massachusetts Institute, but to many other institutions throughout the States, of which it may suffice here to mention, the Harvard University, also in Massachusetts; the Columbia University, the Cornell University, the Syracuse University in New York City and State; also in Philadelphia, the University of Pennsylvania, and in Chicago the University of Illinois, all with similar and not less efficient courses of instruction in architecture. At Harvard University, less time is given to general studies, and more to design and history; but the broad principles are similar. As is the universal custom in relation to these Institutions in the United States, liberal donations for buildings and endowment much facilitate the work. A recent gift of 40,000*l.* by a benefactor whose name is not disclosed will much advance the development of this new school. Professor Ware warmly urges the cultivation of individuality in the students, so that while strictly conforming to certain requirements, they shall at every stage of their work have a degree of latitude and freedom, always finding some necessary element to supply from their own taste and intelligence, thus tending to develope in every student whatever independence of character and spark of originality he may chance to possess. Besides the regular course in these colleges, a special two years' course in architecture is arranged to meet the requirements of those draughtsmen of two or more years' experience who are desirous of pursuing a course in architecture, but whose early education would not enable them to pass the entrance examinations in mathematics and other subjects, and who cannot take the time to pursue a four years' course. This systematic training and completion of education in academic studies in these University courses cannot, however, be allowed to supersede the necessary final stage of experience in an architect's office; but it effectively prepares for it, enables the student to rapidly appreciate and assimilate such experience, and to supplement it in a most important manner.

With all the advantages now accessible to the student in this country, there is not any systematic and thorough course available for him in any way approaching in completeness to those afforded by the American Universities; in too many cases the pupil desirous of advancing his knowledge can only do so by taking up courses of evening instruction after his daily work of office routine has exhausted him physically and mentally, and rendered him unfit to reap the full benefit of his studies. The Institute, by its position and influence, can do much towards attaining this end; it has already, with the help of the Architectural Association, effected great improvements in the education of the architect, and, with the success of the American schools as encouragements, may well endeavour to secure for the coming race of students a systematic course of professional University education not inferior to those herein described. The task, if undertaken, is one of great difficulty, and in any case can only be advanced slowly."

Let the Architectural Association hope for some liberal benefaction to put it on a satisfactory and permanent footing. There are many very wealthy men in this country who sufficiently realise the immense importance of the art of architecture as the most important and permanent expression of civilisation and of national greatness, to contribute in a substantial manner to the establishment of a college for the education of the profession if once they became aware of the urgency of the need. It is not generally realised how poorly paid the architectural profession is, and how consequently impossible it is adequately to endow its own teaching. A school such as I suggest this Association should open would be a fair start for the higher training we so much need. It has probably occurred to many that the Association as the principal architectural teaching body, should be officially recognised by the new London University. The Committee will not lose sight of this important question, but in view of the character and standard of technical training the University requires, I do not think we can just now expect to do more than obtain its official recognition for our teaching staff.

As regards examinations the good old English proverb is true to human nature, "You cannot put an old head on young shoulders," and no man of common sense expects more than a very small fraction of youths to be sufficiently enthusiastic (in the abstract) to put forth their best efforts to acquire skill and knowledge (for their own sake) before they know their joys and their value as a means of livelihood. It is therefore necessary to provide some incentive to work. Our system of studentship and of prizes is founded, of course, on this obvious truth. Experience proves that the best course of systematic training falls to the ground without some such stimulus. There is no prize so precious as the testimony of the leaders of one's profession that one has sought by long and well-directed study to make oneself proficient in one's calling. I find that out of the total number of London candidates in the Royal Institute of British Architects qualifying examination last year, 48 per cent. in the Intermediate and 63 per cent. in the Final were students of this Association.

The possession of ability to design and to draw are comparatively rare gifts (in combination especially with business and constructive capacity), but they are absolutely necessary to an architect. Both can be sufficiently tested to exclude from the Institute men who are grossly deficient in these qualities. Can anything therefore contribute so greatly to the improvement of architecture, as an art, as an examination in these? Let it be borne in mind that the temptations to take up architecture as a business are as numerous as the opportunities are great as compared with those presented by painting or sculpture. Consequently we are bound to choose between retaining our present examinations in art (as well as science) as a qualification for membership of the Institute or of admitting builders equally with architects to a test of knowledge of construction *only* with the certainty that this qualification would in the public estimation be equivalent to a complete architectural equipment! This *art* test is our only hope of purging the profession, as far as may be, from the commercial spirit, the worship of mammon. To those who are just joining our courses of study I will give no further advice—they must already be wearied with my platitudes—but I will offer them some refreshment in the words of one of the greatest of modern artists. Louis Stevenson penned these words at Fontainebleau with the spirit of Millet beside him, and although they were addressed to a youth who was thinking of making painting his profession, they may with almost equal force be applied to every aspirant to our calling, and you may substitute the word architect for artist all through the quotation:—

"The vast mass of mankind are incapable of doing anything reasonably well, art among the rest. The direct returns—the wages of the trade (art) are small, but the indirect—the wages of the life—are incalculably great. No other business offers a man his daily bread on such joyful terms. In the life of the artist there need be no hour without its pleasure. Suppose it all paid: the wonder is it should be paid at all. Other men pay, and pay dearly, for pleasures less desirable. The public knows little or nothing of those merits in the quest of which you are condemned to spend the bulk of your endeavours. Merits of design, the merit of first-hand energy, the merit of a certain cheap accomplishment which a man of the artistic temper easily acquires—these they can recognise, and these they value. But to those more exquisite refinements of proficiency and finish, which the artist so ardently desires and so keenly feels, for which day after day he recasts and revises and rejects—the gross mass of the public must be ever blind . . . Under the shadow of this cold thought, alone in his studio, the artist must preserve from day to day his constancy to the ideal. It is this which makes his life noble; it is by this that the practice of his craft strengthens and matures his character. . . . Many artists forget the end of all art—to please. It is doubtless tempting to exclaim against the ignorant bourgeois; yet it should not be forgotten it is he who is to pay us, and that (surely on the face of it) for services that he shall desire to have performed. Here, also, if properly considered, there is a question of transcendental honesty. To give the public what they do not want, and yet expect to be supported; we have there a strange pretension, and yet not uncommon, above all with painters. The first duty in this world is for a man to pay his way; when that is quite accomplished he may plunge into what eccentricity he likes, but emphatically not till then. Till then he must pay assiduous court to the bourgeois who carries the purse. And if in the course of these capitulations he shall falsify his talent, it can never have been a strong one, and he will have preserved a better thing than talent—character. . . . . The artist is of the Sons of Joy, chose his trade to please himself, gains his livelihood by pleasing others, and has parted with something of the sterner dignity of man. . . . . If you adopt an art to be your trade, weed your mind at the outset of all desire of money. What you may decently expect, if you have some talent and much industry, is such an income as a clerk will earn with a tenth or perhaps a twentieth of your nervous output. Nor have you the right to look for more; in the wages of the life, not in the wages of the trade, lies your reward; the work is here the wages."

On the still larger question of the legal protection of the title of architect I would call attention to the growing feeling abroad as represented by the resolution by M. Couran carried, I understand, with unanimity at the recent International Congress of Architects at Paris. It runs as follows:—

"That Governments take measures to protect and ensure respect for the title of 'Architect' by reserving it for the future, and without retro-active effect, to architects provided with a proper certificate, by forbidding others to use it, and by putting it within the reach of all by means of the diffusion of Architectural Education."

In the monstrosities which deface every new street and so large a proportion of our recently cleared sites in London, there is no lack of desire for architectural effect, and all this, let us bear in mind, represents a demand on the part of the public who are now wealthy enough to afford the luxury of art. The fault is in the ignorant expression of this ambition by men who presume to call themselves architects. It is knowledge and taste we want, and none but men who have spent their lives in patiently acquiring and practising this knowledge can design a good street front. There is, to my mind, little doubt that "taste" (the subtle and most precious attribute of every true architect) is largely a matter of experience or, if you like, of knowledge. It is possible not to associate with persons who use the language of Billingsgate, but the educated community cannot avoid continual contact with the architectural Billingsgate which first offends, then prostitutes, our æsthetic sense. We may, however, congratulate the London County Council for showing that it is alive to its responsibility in protecting the educated public from such shocks to their feelings in relation to the frontages of the new street from the Strand to Holborn. Let us hope this effort will be a success. Another hopeful sign of the times is that some of the great London freeholders, in rebuilding their estates, insist that an architect of established reputation in design shall be employed by the lessees. Here again we have the evidence that influential parties interested in supplying the demands of the middle classes realise that the public are beginning to want, and are prepared to pay for, good work.

The prospects before us were never so bright as to-day. Besides the ever-growing demands at home for all kinds of special public buildings, there lie beyond our shores immense and rapidly ripening fields for architectural skill. Few of our young men can have considered the growth of innumerable towns in Africa, India, and the more Eastern of our colonies without its arousing the spirit of adventure and a certainty of occupation. And bear in mind that it is London-trained men who are mostly in demand for such situations. When cities are being conceived and largely erected in two or three years (Khartoum for instance), all designed by Royal Engineers, one asks oneself, what training in architecture do Woolwich and Cooper's Hill and other colleges afford? I believe *nil*. If art is not for ever to be ignored by English Governments, why should it not be made a rule that each young engineer who is appointed to government architectural work in the great cities of our dependencies should have a year in our leading architectural schools or offices?

A movement among us full of promise for the future of architecture, and one which was the key-note of this year's congress of architects convened by the Institute, is the alliance of the architect, sculptor, and painter, as well as the artist-craftsmen in the production of a building of any importance. Such brotherly counsel, combined with a clear conception in the mind of the architect of the effect required, ought to result in buildings of greatly increased beauty and interest. It would tend to this happy co-operation in the constructive and decorative arts if our studio could in some way be made preparatory to the Royal Academy School of Architecture, which naturally will take only advanced students. If this were found impracticable, possibly on the social side of the Architectural Association (a side we hope will ever be encouraged by all concerned) a rendezvous may be devised which will bring the students of all these arts into closer touch in their early days.

What age other than our own can claim to have supplied subjects for sculptors and artists so magnificent in their conception or fraught with greater hope for the immediate benefit of mankind in general? They may record in stone and colour in our buildings the vast truths of evolution, or celebrate the welding together of an empire whose arms exist alone for the defence of liberty. Can we as architects have a higher ideal before us than to dignify and beautify the Metropolis of such an empire, and this should be the ambition of every member of our Association. And then, when this is done—

> We shall rest, and, faith, we shall need it—lie down for an æon or two,
> Till the Master of All Good Workmen shall put us to work anew!
> And only the Master shall praise us, and only the Master shall blame;
> And no one shall work for money, and no one shall work for fame,
> But each for the joy of the working, and each, in his separate star,
> Shall draw the Thing as he sees It for the God of Things as They are."

Mr. G. H. Fellowes Prynne, in proposing a hearty vote of thanks to the President, said that the address had been an admirable one on account of its suggestiveness and because it went deeply into questions which interested all of them. In their new President the Association had an artist and a man whose convictions were sincere—who was practical, methodical, and persevering; and with such a President they might safely prophesy a prosperous session. The President had made some kind allusions to his (the speaker's) term of office, but perhaps the least said on the personal side of the question the better. Much that he had accomplished was the result of the earnest and hardworking efforts of the officers of the Association, who had worked with him with perfect unanimity. If any reward were necessary for his efforts as President, he had found it in the good-fellowship which existed in the Association and which he hoped would always exist. In reference to the falling-off in class attendances at the end of each session, it had been referred to in previous presidential addresses, and it was difficult to say what the cause was. It might be that the younger members tried too quickly to rush into advanced work—into the Advanced Class of Design, for instance, before they had been in the elementary class—and in doing so discovered their weakness; they found cleverer men than themselves, and in the prize hunts they found themselves out of it, with the result that apathy set in. The steadier men, however, began properly, built up their education on a solid foundation, and generally gained the prizes. He thought it was a pity that the system of the Association did not force men to go through the elementary stages before admitting them to the advanced, for only in that way, he thought, could they avoid the great differences noticeable in students' work—the clever designs of some and the meagre designs of others. As regards the *Sketch Book*, he agreed that it was a pity that the younger members did not seem to value that invaluable publication, for he was sure, with Messrs. Lewis and Pite as editors, that whatever was published in it was worth looking at. He was glad that the President had referred to the eleven members who, in a patriotic spirit, had gone to the Transvaal war, and in that connexion he might say that he believed there would be a fine opening in the new colonies for young architects. As an instance of the value of being on the spot at the right time, he mentioned the case of a young fellow who, after being in his office for six and a-half years, and serving in a builder's office two years, went to the Cape, and, after the Matabele war, went into a township where he got 150,000*l*. of work. During the Boer war he had returned to this country to perfect himself in architecture. In mentioning the art of the century, the President had omitted to mention Burne Jones, who, as an idealist in painting, would rank for ever as one of the great leading artists in England; and the President, unintentionally, had omitted Stevens, the sculptor. As to architecture, it did not seem able or ready to take advantage of the great scientific movements at the commencement of the century, probably because it was hampered by precedent and tradition. Take the use of iron: architects had ignored or barred its artistic use, as they do now to a large extent, with the result that engineers, who at once grasped the wonderful use of the material, were able to advance by strides, and in their works erect scientific monuments—monuments which, though scientific, were monstrosities in art. Could architects be surprised that bridges and similar works, which should have architectural features about them, should not be given to them to carry out? He could not agree with one remark made by the President, viz., that an engineer should pass a year in an architect's office, for that was quite insufficient. What was needed was combination, such as was seen in France. Could a year's training in architecture do more than make an engineer think he knew sufficient about architecture to enable him to ignore any combination with the architect? He desired specially to endorse the President's advice to accept the altered conditions of our age; that should be the key-note for the twentieth century at least. He desired, too, to support warmly the President's warning against pinning their faith to temporary schools of thought—or art. There was as much narrow bigotry and thought in art as in religion or politics, and he specially deprecated that too ready condemnation of design—that putting aside with a sneer a work that had cost days and days of thought and labour. His advice to students was to try and seek for the good in every design; not to hunt only for the bad points—to try and get at the back of what an artist meant in his design. In that way they could get a value out of every man's work. They must all know people who had been brought up in one school of design thinking meanly of and abusing the work of another school: Gothic as against Georgian, and *vice versa*. There were those who called all modern Gothic work a bastard imitation, and the same men would go into raptures over a bastard and a mongrel Classic. "There is much that is good in what is called bastard Gothic as there is in so-called bastard Classic." Let them keep aloof from such narrowmindedness. As to the educational system in France, one must sympathise with the President's remarks that that academic system had not improved the domestic work of France. In thinking of the domestic work of Norman Shaw, Aston Webb, and others one could compare our domestic architecture favourably with the French; but with national works the case was different. Our national works were, no doubt, improving, and much was expected in the future, but the Belgians and French were far ahead of us in both dignity and power; their works spoke of the object for which they were intended, whereas ours were too often mean and insignificant. The academic system had given foreign countries greater national monuments, comparatively, than we possess in this country. The most important point raised in the whole address was as to day classes. He did not suppose that any one would doubt that it would be an excellent thing if such classes were possible. There was not an architect worthy of the name who would not far more gladly accept a pupil who had been in the classes of the Association two years than a novice, for it would be a far greater economy to the architect and infinitely more economical to the pupil. As regards pupils, there ought never to be an agreement made which did not permit a pupil to give up the calling if he chose at the end of six months, and he, the speaker, always made it a rule that a pupil could leave at the end of six months, should he find himself unsuited for the work. He agreed as to the necessity of the day classes, but he doubted whether it would be possible to start them at present. The American system was far and away superior to our own, and Mr. Cates's valuable article, quoted from by the President, had supplied them with many ideas for consideration as to the possibility of forming such classes in our own country. Amongst other points in the American system was the one admitting ladies to the study of architecture. If the day classes proposed by Mr. Smith would be dependent on financial aid from architects themselves, he was afraid they would be a failure. Architects were not, as a class, able to afford great sums, but the President said (and with this he, the speaker, agreed) that there were many people rich enough to support such a scheme. In America rich men came forward and helped in a most liberal way various institutions; but in England no one seemed enough interested in the great art of architecture to help in that way. There were big landowners round them who were raising enormous sums from buildings on their estates, and it seemed as though they were the people to come forward if they had any interest in national architecture. Unfortunately, the majority were not interested, and few rich people cared anything and knew little about architecture as an art. There seemed to be not the same seeking for good architecture amongst the moneyed class as there was for good painting and sculpture. The Association had started well and had established the voluntary system, and he believed the work which was done voluntarily was the best work men could do. How long that system would go on, how long it would be possible, was quite another question. They must face the fact that sooner or later the work would get so great, and the requirements so much more numerous

than they had been, and the sacrifice of time, energy, and money so much greater, that it would become too great, and the Association would no longer be able to get really efficient work out of the best men. The great law of self-sacrifice for the good of others which seemed so necessary in all human undertakings had to a great extent been practised by those who had guided the destinies of the Association, and he believed that that spirit would continue. But they must take care that the labours of the past were not thrown away by not recognising and keeping in touch with the needs of the present day, and by not recognising that the need of the students called for some more thorough system of education. Whether the time for day classes had come he could not say, but he sincerely hoped that the classes would one day be commenced, and he believed that when that system was started the next idea would be to aim at some regular collegiate system.

Mr. E. W. Mountford, in seconding the vote of thanks, said that the office in which he had received his architectural education had provided the present President of the Association, the President of the Royal Institute of British Architects and the Colonel of the Artists' corps, and he thought that was sufficient to make that office a notable one. He was able to give the correct explanation of why the attendance at the classes fell off towards the end of the session, as he had had the privilege of passing through the classes, and his attendance used to fall off at the end of the session. If a young architect worked all day in an office and every evening in classes during the winter months, towards the spring he felt the need of recreation, and accordingly his attendance at the classes fell off. When students got all their education in the Association, and when there would be no need to work in the office, they would probably work right through. He thought it was a very good idea that young architects should go to the Colonies. They had heard how the Association was prospering —that there were 1,291 members—and, in his opinion, a good many of them might with advantage go abroad. One of his former assistants went to the Cape and to the office of one of the leading architects of the Colony, and he wrote home that the chief trouble was that they not only supplied the architecture, but most of the building material, and in preparing a design they were much influenced by a desire to work off old stock. That man was doing exceedingly well now.

Mr. C. H. Strange said, in reference to the President's remarks about the Discussion Section, which was sometimes in danger of being overlooked by the general body of the members of the Association, he desired to take the opportunity to correct a rumour which he understood prevailed in the Association—viz., that the Discussion Section was a rival of the general meetings. Nothing was farther from the fact or the intentions of the Committee of the Discussion Section.

Mr. Carvill said a telegram had been received from the President of the Institute, Mr. Emerson, expressing his regret at being unable to attend the meeting owing to an engagement at Chester.

The vote of thanks was then put to the meeting and heartily agreed to.

The President, in reply, said he heartily agreed with Mr. Prynne as to the influence of Burne-Jones, for he considered him, next to Turner, the greatest of modern painters; while there was no doubt in the minds of those who had seen Stevens's work that he was one of the greatest of the sculptors of the century. He also desired to endorse Mr. Prynne's criticism that one year's education in architecture for engineers would not be sufficient, though he still felt it would give an engineer some interest in the principles of art, and might to some extent correct the troubles which now exist. Still, he agreed that engineers and architects should work in collaboration. Mr. Prynne was dubious as to the possibility of carrying out the scheme of day classes, but he did not at all share those doubts. He had made a careful calculation, and he believed the scheme could be carried out for about 1,000*l*.—that was to say, they would lose in three years, until they got enough students to make it pay, about that amount. He had got promises of 500*l*., and he did not see why they should not get the remainder. As to the public not having the same interest in architecture as in music and painting, he thought it was largely due to the want of patronage on the part of leaders of public thought, and especially of those in a position to influence the public Press to bring the subject before the attention of the public. He did not think architects themselves had done enough to induce royalty or other leading personages to support architecture, for in his opinion that was how music and painting had got to be talked much about, though whether they were understood was another matter.

The meeting then terminated.

The conversazione will take place on Friday, the 19th inst. Visitors' tickets are available on payment of 2s. 6d. The next ordinary meeting will be held on October 26, and the paper arranged for is by Mr. Francis Bond, the subject of which is "French and English Cathedrals," illustrated by lantern views. Mr Bond, however, is seriously unwell, and may be unable to read his paper, in which case a paper arranged for a later date will be read.

AN ARCHITECTURAL CRITIC IN THE YEAR 2000 A.D.*

THERE is no pleasure without alloy: no honour without its drawback. The prologue and epilogue of the session form the drawback to the honour you have done me in electing me as your President, and destroy the pleasure I should otherwise feel at the distinction you have conferred upon me.

For not only is the honour a great one to be President of the oldest provincial architectural society in the kingdom, a society which is only second in age to the Royal Institute of London, but it is rendered still greater by the eminence of the previous occupants of the Chair. My knowledge of the Society is of recent date, and of Presidents prior to the date of my appointment at University College I cannot speak; but I had the good fortune to come to Liverpool when this Chair was occupied by one who has worked long and zealously for the welfare of the Society, Mr. Henry Hartley. For the first time for many years his name is not on the list of the Council of the Society; a fact we all deplore, and nobody more so than myself. Since then Mr. Bradbury and Mr. Culshaw, and my immediate predecessors, Mr. Willink and Mr. Ould, by their energy and devotion, have raised the value of these meetings and have greatly helped to extend the influence of the Society and make its power felt in all matters affecting our profession and the welfare and beauty of this city.

In occupying this Chair, therefore, I am conscious of the difficulties of my position, and of the comparisons which may be instituted, to my disadvantage, between my predecessors and myself. I only ask for your kind indulgence in the mistakes which I am certain to make and for your friendly support in any difficulties which may be encountered during my year of office. Upon this I feel certain I may rely.

Although it is not in your power to help me in some of my difficulties, of which this opening address is not the least, I am glad to be able to say that, as regards this address, I have received assistance elsewhere, and from a quarter least to be expected. There has lately come into my possession a lecture delivered by a Professor of Architecture in the year 2000 A.D., in which he reviews the architectural work of the century previous to his own, or in other words, the work of the present time. How I obtained this paper would take too long to explain, but I can assure you that it would be an interesting story to tell if only time permitted. As this is not possible I will only say that you can imagine the relief I experienced at not being called upon to produce anything of my own after the two able addresses of last year, which all of us, I feel certain, have recently been reading with so much pleasure.

The address by this unknown author which I have the honour to present to you to-night is entitled "Architectural Conditions in the Nineteenth Century." The paper it is printed on is much like what we use now, and the type is very similar. It would indeed take a clever expert to detect any differences. It is addressed to the Students of——, and here, unfortunately, the name has been torn off. I may mention that here and there words are illegible, which is particularly unfortunate, as they are generally the names of architects or of buildings, which the author selects for praise or blame. In some cases, therefore, I have been obliged to slightly vary the wording of some of the sentences, for which I ask your forgiveness.

The address commences: "Ladies and Gentlemen," and this is particularly interesting as showing that at that period architects were not exclusively of the male sex. In fact, I gather from fragments of other papers in my possession that in some branches of architectural work, and especially in the decoration of buildings, female practitioners were in a majority. But that is by the way.

Here is the paper:—

"The state of architecture in the nineteenth century is difficult to define. The revivals at the end of the previous century had destroyed the last vestiges of traditional art remaining in England, and the architectural world for many years afterwards was divided into two camps, one containing the exponents of the Gothic style, the other of the Greek. This latter revival need not occupy our attention. It was merely an interlude, and had no subsequent effect on architecture. But the revival of Gothic had different results. This is not to be wondered at when we remember that Gothic was an indigenous style, and that the influence of the old mediæval traditions of building had lingered in England almost until the commencement of the century. In the early days of the revival, the most English of all the phases of Gothic, that which was practised in the fifteenth century, was the one universally followed. Foreign idioms, so to speak, crept in later, and copies of earlier work were not attempted until the century was half over. It is not my intention to give you a history of the revival, or to describe or refer to the many churches and buildings, beautiful though many of them were, erected in that style during the fifty years when it reigned supreme. That would mean a paper in itself. But one result of this revived interest in Gothic art requires special mention. The middle of the century was the great age of 'restorations.' For five and twenty years, that is to say from about 1850 onwards, the restoring architect carried everything before him. It is difficult for us to realise now the intense fervour with which the work proceeded. The ancient Cathedrals were scraped, rechiselled, recarved, practically rebuilt. A clean sweep was made of everything that was not Gothic. Even Gothic work itself was not sacred. Portions of buildings, of later date than the original erections, were in many cases destroyed in order to give place to nineteenth century versions of what might have been. The parish churches were treated in the same way as the cathedrals. For a clergyman to have an unrestored church was considered as great a disgrace as to have a son who was a convicted felon, or a daughter who bicycled in rational costume. By the end of the century no such thing was to be found in the length and breadth of the land. The enthusiasm for restoration which undoubtedly existed and which seems almost inexplicable to us now, was not due so much to a love for architecture as to a mixed feeling partly sentimental, partly religious. The cathedrals appeal to us now merely as fine works of architecture, but 150 years ago they possessed an additional interest. They were then not only architectural creations; they were also historical monuments. Injured as many of them were, through various causes, they were still full of memories of the multitudes which had worshipped within their walls and of the craftsmen who had laboured to add beauty to them.

Every stone could tell a story. In every bit of carving you could still see marks of the chisel of the original artificer. The carving was mutilated perhaps, but enough of its beauty remained to recall its original splendour, and in spite of, perhaps partly because of this mutilation, it aroused more enthusiasm and admiration than if it had been unbroken. In those days the churches were full of the work of all ages. Windows which had been altered in order to give more light, or else increased in size to frame the splendour of the painted glass, still stood sandwiched between others of earlier date. Oak benches and screens with crude but interesting carvings by Elizabethan or Jacobean men showed that the churches had not been so neglected after the Reformation as the restorers wished people to believe and strove to make apparent. Pews of the time of Queen Anne or the first George

* Opening address delivered to the Liverpool Architectural Society, by the President, Professor Simpson, on Monday, October 8.

still remained where the squire had sat and slept through the sermon, his gouty leg propped on a fat and comfortable hassock. The old 'three-decker' pulpit was still to be seen proclaiming the Protestant trinity of rector, curate, and clerk. The history of England was written in and about these old buildings. It was this history which the 'restorers' of the nineteenth century ruthlessly destroyed. Not only this, they also destroyed the glamour which hung around them, making it impossible for future generations ever to experience the same sensations. We owe the restorers a debt of gratitude for preserving these *structures* for us as monuments of architecture, but we can never forgive them for destroying what was to a great extent the principal charm of this old work. If the architects of the time had been less skilful or more self-assertive, we should probably have been more thankful to them. But their knowledge of the art they loved was in most cases too great; their self-renunciation too complete. The latter was worthy of the old monks in whose architectural footsteps they strove to follow. But their very correctness was the cause of the decay of interest in Gothic art which set in even before the end of the century. The more correct their work, the more exact their carvings, traceries, and mouldings, the more surely was the revival doomed. It was a case of killing through kindness. The problem confronting these restorers was no doubt a very difficult one. To have allowed these old buildings to fall would have been an act of vandalism, and the wave of Gothic enthusiasm was too strong for half measures. In the case of the cathedrals and large churches it is difficult to see how they could have acted otherwise than they did. But some of the parish churches might surely have been left undisturbed to act as sweet resting-places to sit and dream in, away from the rush of the matter-of-fact prosaic age in which we live. This could easily have been done. These buildings could undoubtedly have been preserved without the elaborate scheme of restoration and refitting to which they were subjected. The money which was spent on them, the thousands of pounds, if not millions, would have been better expended in building new churches alongside them and allowing the old ones to remain as historical monuments, a little judicious attention preventing their further decay. But the clergy and laity alike would have regarded this as an attack on the established religion, and subscriptions would not have been forthcoming. One consolation we have, and that is that certain buildings were already in ruins before the restoration mania set in. Fountains, Tintern, Glastonbury still remain to us, as perfect and as beautiful as they were then. In those ruins we can picture the abbeys as they were once, and admire such carving and detail as remain without an unpleasant feeling at the back of our minds that we may be gazing at clever copies and not at the originals. Thank God, they did not attempt to restore these.

In one other respect we have cause to be grateful to the restorers. Their love of archæological correctness destroyed archæology. Our delight in those old buildings is now purely an architectural one. Disputes as to the date of the structure, as to whether a bit of carving is thirteenth or fifteenth century, are no longer possible. The nineteenth century is responsible for all. The old test as to the age of any part, the state of the stone, no longer holds good; unless it be urged that the more decayed the stone, the more recent the work. The old materials had become seasoned through centuries of more or less pure atmosphere, before coal was worked and when the population was less numerous, and were consequently able to stand the vitiated air of the later periods to which the newly-worked stone soon succumbed. But this test is by no means infallible, and even if it were, few have the curiosity or leisure to investigate the matter.

To the age of revivals and restorations succeeded an era of experiments. The period between 1875 and 1900 was marked by most interesting work, ecclesiastical and domestic, but a recognised architectural style seemed more than ever an impossibility. Not only did different architects work on totally different lines, but individual architects often jumped from one style to another with surprising alacrity. It was no unusual thing to find men designing in Gothic one day, in Classic the next, or indulging in their odd moments in a delectable compound called 'Queen Anne.' They were like children, who, with several sweetmeats before them, nibble a bit first from one and then from the other. This architectural jumble was due as much as anything to the changed conditions of the times. The introduction of steam had revolutionised all things, amongst others the methods of architectural study. The old days of the 'grand tour' and severe examination of ancient buildings were things of the past. With quickened means of transit came feverish haste in study. Men discovered that they could go to Paris from Saturday to Monday, and to Rome and back in a week. They no longer sat down before a building and laid siege to it with calipers, measuring-rod, and tape, mastering every detail and studying every stone, but, sketch-book in hand, were content to jot down 'bits' as they hurried along which might be useful to them afterwards. Sketch-book architecture became for a short time the rage. Flemish gables, German doorways, French windows, and Spanish ironwork crossed the Channel, and united to form original architectural designs. It was resurrection-pie *à la Continental*. It tickled the palate, but did not fill the stomach. The phase was short-lived; like all fashions, it ran its course, met with its meed of approbation, and then died out. Men, sated with Continental fragments, like truants returned home; some, to their credit, had remained staunch to their own country. The Queen Anne movement, which had effected so vast a change in domestic work, reasserted itself, but in a more subdued and chastened spirit. The high priest of the movement, Mr. Norman Shaw, had at the end of the century retired from active service, crowned with well-earned laurels; but there were many others to carry on the work, who with one accord united to try and revive the old traditions of English building which had been so completely destroyed by revivals of a hundred years before. This was the most important movement of the century, and the one that had the most lasting results. It was not universal. There were still those who clung to archæological Gothic and picturesque Elizabethan, and there were others who went to the other extreme and said: 'We will have nothing to do with traditional work; we will absolutely ignore precedent; we will return to materials and materials alone, and create our designs out of these and nothing else'—all of which sounded very pretty in a paper, and was received with much applause when enunciated at meetings, but which landed the authors in serious difficulties as soon as they attempted architectural design. The successful architects were those who neither ignored old work nor slavishly copied it; who understood and respected their materials, but who were not above learning from the masterpieces of bygone times.

The many new and different problems the architects had to solve formed one of the great difficulties of the age. In the first half of the century only churches and public buildings were considered worthy of architectural effort. Utilitarian buildings were left to the builder. But with the growth of the æsthetic movement in other branches of art grew the desire for architectural expression in all buildings, irrespective of the uses to which they were to be put. This meant a severe tax on the architects' powers of designing. Without a recognised style, with no traditions to assist them, with an absolutely uneducated set of workmen to carry out their ideas, hampered by work foreign to architecture, such as surveying, valuing, questions of dilapidations, ancient lights, and other semi-legal business which has long since passed into the hands of a separate class, it is no wonder that they did not always succeed. We flatter ourselves that we can do better now, but then we have their successes and failures to guide us. What the old Gothic and the Renaissance of the 'teens' was to them their work is to us, and in one respect we have the advantage, as the problems we have to solve are not very different from those which exercised them. Some things they did are difficult to understand. To give one single instance only. In the International Exhibition held at Paris in the year 1900 a large building represented England officially. When one considers that science was represented by its latest inventions, and that the workers in all other branches of art contributed their best and most original work, one would have thought that this building would have been a typical example of English architecture of the end of the century. One would have expected an original design to show what English architects could do. Nothing of the sort was attempted. An old house erected some 300 years previously was carefully copied, detail for detail, an exact replica as far as the outside was concerned, and this was the English official architectural contribution. No doubt it was well done; it was the kind of thing they could do then uncommonly well; but I wonder what would be said now if it were proposed to reproduce a building of the nineteenth century as our representative contribution to an exhibition whose object was to advance the arts, sciences, and industries. I do not envy the man bold enough to make such a suggestion. We might not be able to produce anything better, but at all events we could present something of greater interest because it would be an example of the art movement of the day.

The greatest crime of the nineteenth century—but for this the architects were hardly responsible—was the erection of acres of small houses which surrounded all the great cities. Crime is perhaps too strong a word to use when one considers the difficulties which existed. The working man and the city clerk had to be housed, and tenement blocks were few and far between. The English artisan still insisted on regarding his house as his castle, even though the walls would hardly stand an assault from a popgun. Two stories high, and the rooms so low that a popular writer of the day said that the people looking out of the first-floor windows appeared to have their feet on the ground floor, these cottages sprawled over the immediate outskirts of a town, house after house, street after street, a dead level of degrading ugliness. There were thousands of front doors all alike and all equally atrocious, and millions of chimney pots, vents for the polluting smoke from the coal fires then in general use for both cooking and warming purposes. London was entirely spoilt before the century was half over, and the once pleasant old villages, which had stood sentinel round it for ages, were reached and then engulfed by the stream of 'homes for human beings.' Other big towns fared no better. Aigburth and Wavertree, round Liverpool, fell into the clutches of the speculative builder. It is sometimes asked why the people were so mad as to allow such things; why did not the municipalities step in and, by buying up the land round the city, prevent this spreading of their boundaries? If they had done so our difficulties would not have been so great. The task of forming a zone a quarter or half mile broad round each city, according to its size, such as is now universal—a zone laid out as a park for the recreation of the people—could have been done at a tithe of the present expense if it had been undertaken when the land was still country or but sparsely built over. But there were difficulties in the way. The money of the corporations was needed for other things. The sanitary conditions of houses in the towns and of the towns themselves were in some cases disgraceful. The absence of adequate laws in former years had allowed overbuilding and overcrowding to a degree hardly credible. To clear out the rookeries was the first object of every corporation, and that engaged much of its attention and most of its money. Another reason was the dislike of the people for tenement houses. Until this was overcome, and it took some time to do it, the law which prohibited buildings being erected within the town itself and for a certain distance beyond the zone, less than four stories high, or covering less than a certain superficial area, could never have been passed. A third and most important reason which rendered the 'zone' impracticable was the difficulty of communication between town and suburb. In those days there was only the crawling omnibus, drawn by horses, and the cumbersome train, with its heavy steam engine and tender for coals, and guard's van and other accessories. Electricity was in its infancy. But as soon as the application of that power became understood and in general use this objection to the zone disappeared. One minute or two minutes longer in a car night and morning was a small price to pay for fresh air and sunlight, for a healthy city and a healthy people. This they might have realised sooner than they did.

The extent of a city now is once again defined within lines as clear as those which surrounded the towns of the Middle Ages; but instead of a wall and fortification there is a park. And beyond the park the suburbs, where, in some parts, the houses are all detached, the private residences of the merchants and well-to-do middle classes; and in

others the tenement buildings of the poorer classes, lining wide avenues, housing double the number on half the space possible in the nineteenth century.

With greater height of buildings came, of course, wider streets. Many more buildings would have come down to us if it had not been for this. It is amusing to read the instructions of 100 years ago. Streets had to be at least 40 ft. wide, important streets 60 ft. wide; and everybody thought that a great triumph had been effected when a new thoroughfare in London, from Holborn to the Strand, was, after many years' discussion, projected with a total width of actually 100 ft. It makes a good street even now, I admit; but we should no longer regard it as an 'important thoroughfare.'

The difficulties of architects have been already mentioned; but the difficulties of the workmen were still greater. The complaint of the day that the average artisan took no interest in his work, and that it was quite impossible to leave any little detail to him to carry out without a full-size drawing, was a very true one; but it was not the fault of the workman. An architect had opportunities for study denied to him. In the eighteenth century his path had been an easy one. All men designed then much on the same lines—the lines on which their fathers and forefathers had worked—and it was easy for the workman to keep in touch with the minor modifications which were introduced from time to time. Even for the first half of the century confusion was not so rampant. It is true the styles favoured then were not traditional, but in the Gothic movement, at least, architects were only too anxious to train workmen in what they believed to be the only possible style. That they succeeded in many cases is proved by the excellence of much of the carving and mouldings still to be seen on such buildings as the Houses of Parliament and the Law Courts, London. But as soon as a number of workmen were beginning to understand and appreciate the feeling of this work, round went the architectural weathercock, and from due Gothic veered to due Classic. Then came the mixture at the end of the century, and it is no wonder that the workman, finding it impossible to understand all the styles, lost touch with his work and ceased to take interest in any. The intelligent foreman who thought for himself, and who would sit, note-book in hand, after working hours, puzzling out the solution of a difficulty—the class of man so admirably portrayed by George Eliot in the charming story of 'Adam Bede'—gradually became a thing of the past. The old traditions which had been passed on from father to son had disappeared. The apprenticeship system was dead, and nothing existed which could take its place. The technical schools were in their infancy, and, although increasing daily and beginning to make their influence felt, had to struggle against difficulties which no longer exist. Fathers had not learnt the value of a preliminary training for their boys. Employers had not realised how much more valuable boys were to them who had received such a training. The trades-unions, which might have been a good influence, were in some cases apathetic, in others unfriendly. Many of the boys, it is true, attended classes, but these were only in the evenings, when the boys were tired after a day's work. Besides, the time spent in these classes was so small, that it gave neither teachers nor students a chance.

The situation was well summed up by a leading architect of the day who, in describing some work carried out in France from his design, said: 'The interest displayed by the local workmen in the decorative details was such as may be looked for in vain from the British workmen.' It was not that the French workman was more intelligent than the English. It was because the vernacular traditions had not been destroyed there so much as here, and because their technical education was far in advance of that existing in England.

The education of the architects was as defective as that of the workmen. Some few years before the end of the century it was publicly stated that there was no architectural education in England, and that in order to meet this deficiency the Institute had started a scheme of examinations. This is probably the most glaring instance on record of putting the cart before the horse. It could only be equalled if a nation were to declare war in order to teach its generals tactics and its soldiers how to shoot. There were architectural classes, it is true, sometimes attached to Universities, sometimes to art schools, and sometimes under the control of architectural societies. But a preliminary systematic training for students was by no means universal. Schools in which all art students—students of architecture, students in the arts of painting, and sculpture, and design, and in the crafts allied to architecture, and students whose future would lie in the more humble paths of building—could work side by side and get in touch with one another were few and far between. The pupilage system was still the most common means of entering the architectural profession, although its drawbacks were almost universally recognised. Advertisements were still common in the building papers:—'An architect in practice has a vacancy for a pupil; must be fond of drawing, and willing; premium required.' Heaven help the boy who stumbled into such an office. He probably learnt nothing, and his duties were those of an office-boy and tracing-clerk without the salary of either. Such advertisements ought only to have been printed with the warning signal 'danger' before them.

Many other points might be referred to if only time permitted. We are better off than our forefathers in some respects, worse perhaps in others. A good deal of work was done then with which we are now out of sympathy; but, on the other hand, we must admit that, whether we consider the enthusiasm of the Gothic revival, or follow the history of the Queen Anne movement, or take the last phase of all, the return to purer English Classic, much work was accomplished that commands our respect and admiration. There was plenty of enthusiasm, plenty of originality, and the two combined to make the work of the century, especially towards its close, an extremely interesting link, although rather a twisted one, in the history of architectural progression."

Here endeth the lecture, and I can only add my thanks to its unknown author for the trouble he has saved me, and express the satisfaction I feel that I have been able to place his views before you to-night instead of my own. It is a paper which I hope will lead to a good discussion, although I believe it has not been customary to discuss Presidential addresses; still, none of you need hesitate about saying what you think, because your remarks, I am afraid, are never likely to reach the author; and even if they did, you need have no fear of retaliation, as by the time he is able to reply, few, if any, of you will be in existence.

MAGAZINES AND REVIEWS.

The *Art Journal* contains an article on "The Museum of Tapestries at Florence," little known even in the town itself, but which appears to contain some goodly treasures of art. In a paper under the title of "L'Art Nouveau" Mr. Lewis F. Day remarks on some of the too patent weaknesses of the new school of decorative designers, who are all, as he expresses it "writhing up to date—for the lines of their design are with one accord contorted, in a manner which begins to be as trite as the severest of classic forms; the trick is already a convention, only an ugly one instead of a beautiful. It is used to express no matter what—flames of fire, wreaths of smoke, waves of water, and is an invaluable means of veiling forms, such as the nude figure, which it is inconvenient to draw definitely." This and a good deal more that is said in the article is what much needs to be said at present.

In the *Magazine of Art* Mr. Baring-Gould writes a pleasant article on Ightham Mote House, the real value of which however lies in Mr. Railton's beautiful and perfect sketches. Mr. Baring-Gould's exordium, in which he pours a certain contempt on Italian *palazzi* and French châteaux in comparison with English mansions, is rather narrow and insular. Of course an Italian palace has not the homeliness of an English mansion, but it has other and possibly greater qualities proper to itself: nor is the Pitti Palace, to all eyes, "sublimated ugliness." Each land has its own *cachet* in its domestic architecture; and if the whole world were covered with mansions of the English type, we should lose our perception of its special qualities. Other articles are on the works of Edward Stott, as "the painter of the field and of twilight"—a title which he merits, and an interesting one on the process of painting panoramas.

In the *Architectural Review* (Boston) it is curious to find an article devoted to a description and numerous illustrations of a church like that of All Saints, Dorchester, Massachusetts, which, with the exception of a few slightly independent details, is simply an English Late Gothic church, and this is described as "a step forward in the right path towards a true and consistent church architecture." One would be inclined to ask if it is not rather a step backward. Messrs. Cram, Wentworth, & Goodhue are the architects. Messrs. Wheelwright & Haven's design for a building for the Massachusetts Horticultural Society, at Boston, seems to be founded on Wren, in the use of the brick order rising through two stories, with some touches of French feeling added in the cornice and balustrade ornaments. This is another type of imitated architecture. Mr. Blackall's interior details of the office of the United States Trust Company, Boston, show a great deal of grace and refinement.

The *Artist* contains what we think a very exaggerated estimate of Claude Monet, in an illustrated article on his work, but the illustrations given serve to show that in some respects Monet gains by being reduced to black and white. An illustrated article is devoted to pencil sketches by Mr. G. W. Collins, the author of the excellent set of sketches in Clare Market published in our issue of September 29.

The *Studio* (September 15) includes "A Few Notes on Bench-ends," by Mr. J. Henwood Blamey. The writer, we observe, refers to the old oak bench-ends as "of extraordinary and apparently unnecessary strength:" but was that massiveness "unnecessary"? It is to it that a great part of the effect is due. Mr. Grubhofer's sketches at the Paris Exhibition are very good. We quite concur in the tone of the article on the work of Mr. Arnesby Brown, a painter whose pictures always display original thought.

The *Antiquary* contains "Notes on Some Stone Finds at Killucan, co. Westmeath," by the Rev. W. Falkiner. "The Noblest Guild of Freemasons" is the title of a review of Leader Scott's considerably over-rated work on the Comacine masters, who are themselves—or their importance—over-rated.

The *Engineering Magazine* for September (not noticed before) includes articles on "Recording Steam-engine performances," the object of which is partly to record the power of the several cylinders, in order to keep an eye to an equal distribution of work between them—a point as important with an engine as with a team of horses; on "Locomotives at the Paris Exhibition," and "Electricity in the Collieries of Great Britain." One of the objects aimed at is to work portable electric lamps in a convenient manner, to replace the old safety-lamps.

"The portable electric lamp consists of a case, in which is stored sufficient electrochemical energy to furnish current for a one candle-power lamp for ten to twelve hours or more, with a small incandescent lamp attached, the lamp being either on the top, the side, or the bottom of the case, the lamp itself being protected by a stout outer glass, similar to that used with the ordinary oil safety lamp, and usually, also, if above the case, with a metal plate and with wire guard rods. A hook or ring for carrying the lamp completes the equipment, but in some forms of lamp there is also a switch to turn the current off when not required. The case containing the cells which form the supply of energy is also protected with an outer case, either of steel, aluminium, or wood. The supply of energy is contained in galvanic cells."

There are not wanting objectors, however who say that the old lamps gave indication of the presence of gas, while the electric lamp does not. But its advantages, we should surmise, counterbalance this objection. The number for October includes articles on "Air-Compression by Water-Power," on "Centralised Steam-Condensing Plant," and on "Electric Power in Great Britain," the latter a short but comprehensive article on what may be called the administrative treatment of electric power.

The most important article in *Feilden's Magazine* is that on "Electrical Methods of Heating as applied to the Working of Metals," by Mr. de Tunzelmann. It describes and illustrates the Benardos and the Voltex systems of electric fusion as applied to the welding of metal. Mr. Twelvetrees is writing an account of the making of the Central London Railway, the second instalment of which appears in this month's number. "Quick-firing Guns" is a subject not within our professional sphere, but

it is one which may at present interest English readers of all professions.

Scribner, under the heading "The Field of Art," has some remarks on architectural style. The writer thinks the great trouble is the lack of agreement among the men who might save the situation. He suggests however (as does Mr. Blomfield in a passage quoted in the address of the President of the Architectural Association, on another page) that we must after all adopt an ancient style and work in it until we can work out of it.

"Let the reader consider the new house in Milan, discussed in the *Field of Art* for July, 1899, together with the Paris house described in the number for July, 1900, and he will see the contrast between something even too closely copied from the past and something wholly fresh in design. Discussion of that existing movement in decorative art, in the spirit of which the Paris house is conceived, must be deferred to another time; but it is easy to see that the designer of such a building has immense difficulties to struggle with. No one of his forms—his windows, his balconies, his columns—is a well-worked-out, well-understood element of design. His new fashion of design may possibly grow into a system, a permanent style; but until it has done so he has a reluctant set of units to combine into architecture. Then look at the corresponding parts of the Italian building; how obvious they are, how acceptable, and how easy to fit together!"

The final suggestion is that the best thing we could do is to carefully study the French Renaissance of the seventy years following 1500 A.D., and work it out in detail. There might be many worse suggestions.

The *Nineteenth Century* contains a learned article on "The Majolica of Siena" by Mr. Langton Douglas, who, being engaged in research in Siena, and having reason to think that her majolica pottery deserved a higher place than has been allotted to it, made a search for further documentary evidence as to its history. The results are given in this article, which gives evidence of a great deal of labour, and contains a good many of what are probably new facts. "The Burden of Coal" is considered by Mr. Benjamin Taylor with the seriousness befitting what is at present such a grave subject. The only hopeful note in his article consists in the suggestion that we have not sufficiently considered the results of the great development of electric power and lighting, still in its infancy, in reducing the consumption of coal for steam-raising purposes and gas-making, and how we shall learn to dispense, to a large extent, with coal for our dynamos "by making use of the vast reserves of water-power stored up in the hills of Cumberland, Wales, Scotland, and elsewhere." The latter suggestion is logical, the former surely hardly so, since the diminution of steam-raising and gas-making can only be obtained at the cost of a proportionate increase in the use of electricity for power and light. Force cannot be created out of nothing, whether in the form of steam or electricity; the only improvement in that respect lies in the supposition that electric power is developed with less waste of energy than steam power. The article is worth serious attention, however. Under the title "The Oldest Picture-Book of All" Mr. Walter Maunder considers, in a very interesting article, the question of the origin and age of the constellation figures and nomenclature, and their connexion with early myths. The subject is a most fascinating one, at all events, even if the article, like *Paradise Lost*, "proves nothing."

The *Century* contains an article by Miss Pauline King on American miniature painting, accompanied by a good many very charming illustrations. There seems to have been a revival of this art in America, as in England, the pioneers of it having been Miss Laura C. Hills and Mr. W. J. Baer, whose "Aurora," two female busts with floating hair, and a morning sky over a level landscape behind them, is a lovely work, as shown in the engraving. We cannot however agree with the writer in thinking that miniatures are to be considered from the same point of view as larger portraits in the more serious media of art. Make the best you can of it, miniature painting on ivory will always remain a pretty and conventional type of art, more or less of a plaything or ornament. In all probability the portraits engraved here as illustrations give more the impression of serious art than the originals would convey. The engraving from a full-length portrait by Mr. Chase, "The Lady with the White Shawl," shows an interesting and characteristic "Example of American Portraiture."

Harper contains one of those personal articles on living artists which are becoming so popular in periodical literature, and are to our thinking in very questionable taste. This one is an appreciation, or what we should rather call an adulation, of Mr. Mortimer Menpes—"the man and his methods."

The *Contemporary Review* contains an article under the title "Ruskin, the Servant of Art," by Mr. R. Warwick Bond, which we strongly recommend to the attention of those who are specially interested in Ruskin. Written not without sympathy and a certain enthusiasm, it is a most thoughtful and temperately worded estimate of the nature of Ruskin's criticism and elucidation of art, and of the strong and the weak elements in his utterances.

The *Pall Mall Magazine* contains a popular article on Wollaton Hall, by Mr. E. M. Middleton, written with enthusiasm, but rather over-rating it as an example of architecture. Wollaton Hall is sumptuous but lacks refinement in detail. The shadowy form of "John of Padua" is again evoked as the architect.

Temple Bar contains a rather interesting article on "Pope as a Painter." Probably it is not generally known that the poet, in his earlier days, prided himself on being something of an artist, and executed a 'good many drawings, concerning which some detailed information is given. It is not probable that they were worth very much in an artistic sense; the interest lies in the fact that Pope made them.

The *English Illustrated Magazine* contains an account, with some illustrations, of what is called "The Most Remarkable Railway in the World," which perhaps at present deserves that title; it is the Wupper Valley railway in Germany, running from Barmen *viâ* Elberfeld, an eight-mile single-rail line in which the carriages are hung underneath the rail, which is carried by ∧ or ∩ supports according to situation, the ∩ form being used in passing through a town. The article is only a popular one, of course, but it may help to direct public attention to a method which is likely to be further developed.

The *Revue Générale* contains the first part of an article on "L'Assistance par le Travail en France," in other words, the system of finding work for those who have none, and making the work the condition of assistance.

The *Nouvelle Revue* contains an article on the subject "De Watteau à Rodin," sketching the course of feeling and principle in art between these two very opposite artists. The author shows insight in his observation on the vein of melancholy which pervades Watteau, in spite of the generally gay character of his subjects.

The *Genealogical Magazine* gives illustrations and descriptions of the arms of Calcutta and Madras. Both seem to have been evolved with a view to local colour. The supporters of the Calcutta arms are adjutant birds with snakes in their mouths; the shield of Madras shows "a tiger passant proper on a chief sable, a pale or between two elephants' heads couped of the field, a lotus-flower," &c.

In the *Gentleman's Magazine* Mr. W. H. Thompson endeavours to extract from Chaucer's poems a distinct idea of "The Chaucer Garden."

The *Home Counties Magazine* continues the article, "Notes on Church Plate": that on the old gatehouse at Lincoln's Inn is concluded. A short article on "Chaucer at Aldgate" is among the other contents of the number.

Knowledge gives a drawing of the solar corona of 1900, with a paper by Mr. W. H. Wesley on the dark markings observed in that corona. "Astronomy without a Telescope" is continued by Mr. Walter Maunder.

The *Quarry* gives a description of the electric "Titan" crane at the Paris Exhibition. The serial article on the mineral industry of the United Kingdom deals with the geology and resources of Antrim.

We have received the *Architects' and Builders' Magazine*, a small magazine published in New York, and dealing chiefly with the practical side of building.

Water Supply, Manchester.—The first pipe of the second series of pipes to convey water from Thirlmere to Manchester was laid on the 4th inst. The Thirlmere scheme consists of tunnels and "cut-and-cover" work of about fifty miles in length, and pipes for a further distance of forty-five miles, covering the distance of ninety-five miles between Thirlmere and Manchester. Mr. G. H. Hill is the chief engineer.

Illustrations.

THE ALEXANDER III. BRIDGE, PARIS.

We give in this issue an engraving, from a photograph taken specially for the *Builder*, of the pylons and sculpture decoration of the northern end of the new bridge over the Seine, which, though carried out as part of the Great Exhibition programme, will remain as a permanent feature, at once of utility and of beauty, after the Exhibition has ceased to exist. The view is taken from a point just to the north of the bridge, on the Champs Elysées side of the river. The principal object has been to show the effect of the beautiful architectural and sculptured pylons which flank the entry to the bridge, and which exhibit all the refinement and finish of the best days of French Renaissance art.

The engineers of the bridge, as previously stated in our columns, are MM. Résal and Alby, and the architectural treatment has been carried out by MM. Cassien Bernard and Cousin, architects. The figures at the base of the pylons represent "Mediæval France," by M. Lenoir, and "Modern France," by M. Michel; the corresponding places on the two southern pylons, at the other end of the bridge, are occupied by similar seated figures representing "Renaissance France" (M. Coutan) and "Louis Quatorze France" (M. Marqueste). The lions led by Cupids, on each side of the entrance to the bridge, are by M. Gardet, the first living animal sculptor in France. The lamp-posts on the bridge are model by M. Gauquie, a young sculptor with a special aptitude for decorative work. Thus six of the first French sculptors of the day have been called on to assist in the decoration of this bridge: something rather different from the way the London County Council go about such a piece of work, where the engineer is (nominally at least) to do all the designing, because his feelings would be hurt if artists were called in to assist him!

The figures of winged horses and genii, which surmount the pylons, are entirely gilt; the photograph unfortunately turns them dark, so that their real effect is not seen in the illustration. It may be thought a little "gewgaw" to gild these figures, but they must be judged where they stand, and in the atmosphere of Paris. In the bright days of summer, under a blue sky, they looked perfectly beautiful, and the gilt wings actually had an effect as if the sun shone *through* them, though no doubt this was really the result of reflected light from the surfaces below the wings. These gilt steeds would perhaps not do in the London air and surroundings, but somehow they look quite right in Paris.

The buildings to the left of the view, at the further side of the river, are a portion of the Exhibition buildings on the west side of the Esplanade des Invalides. The distant building with the central and angle cupolas, seen in the middle of the view, is the pavilion of Italy, which terminates the row of structures in the "Rue des Nations."

WALSALL MUNICIPAL BUILDINGS: ACCEPTED DESIGN.

We give this week the plans and elevations and exterior perspective view of the design by Mr. J. G. Gibson for municipal buildings at Walsall, which has been selected for execution. The interior perspective view of the Town Hall was published in our issue of last week. The interior view actually sent in was a tracing in line of that drawing, the first drawing not tallying, in regard to method of execution, with the conditions of the competition, from which washed drawings were excluded.

The following are some remarks by the architect in explanation of his design:—

"The main lines of the plan were laid out to give perfectly straight corridors, leading direct to the different departments, and having windows along one side.

The main block of municipal offices was planned to have the principal entrance in Lichfield-street, in the centre of the whole of the offices when completed, and for this reason the 'future extension of offices' required is placed alongside the county court, and balances the offices now to be erected on the New-street frontage. The Town Hall has its main

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his issue an engraving, from graph taken specially for the of the pylons and sculpture e northern end of the new Seine, which, though carried the Great Exhibition pro- nain as a permanent feature, ty and of beauty, after the eased to exist. The view is oint just to the north of the Champs Elysées side of the ipal object has been to show e beautiful architectural and s which flank the entry to the exhibit all the refinement and days of French Renaissance

of the bridge, as previously olumns, are MM. Résal and chitectural treatment has been MM. Cassien Bernard and s. The figures at the base of sent "Mediæval France," by "Modern France," by M. esponding places on the two at the other end of the bridge, similar seated figures repre- sance France" (M. Coutan) natorze France" (M. Mar- ons led by Cupids, on each ntrance to the bridge, are e first living animal sculptor lamp-posts on the bridge are oquie, a young sculptor with a tor decorative work. Thus French sculptors of the day on to assist in the decoration omething rather different from don County Council go about work, where the engineer is ast) to do all the designing, ngs would be hurt if artists assist him!

winged horses and genii, the pylons, are entirely gilt; nfortunately turns them dark, effect is not seen in the illus- e thought a little "gewgaw" es, but they must be judged l, and in the atmosphere of ght days of summer, under a oked perfectly beautiful, and ually had an effect as if the them, though no doubt this ult of reflected light from the e wings. These gilt steeds t do in the London air and somehow they look quite

to the left of the view, at of the river, are a portion of uildings on the west side of les Invalides. The distant central and angle cupolas, of the view, is the pavilion minates the row of structures Nations."

NICIPAL BUILDINGS: PTED DESIGN.

week the plans and elevations pective view of the design by for municipal buildings at s been selected for execution. pective view of the Town ed in our issue of last week. actually sent in was a tracing wing, the first drawing not d to method of execution, ns of the competition, from wings were excluded.

are some remarks by the ation of his design :—

of the plan were laid out to ght corridors, leading direct departments, and having e side.

of municipal offices was the principal entrance in the centre of the whole of mpleted, and for this reason ion of offices' required is e county court, and balances e erected on the New-street Town Hall has its main

THE ALEXANDER III. BRIDGE,

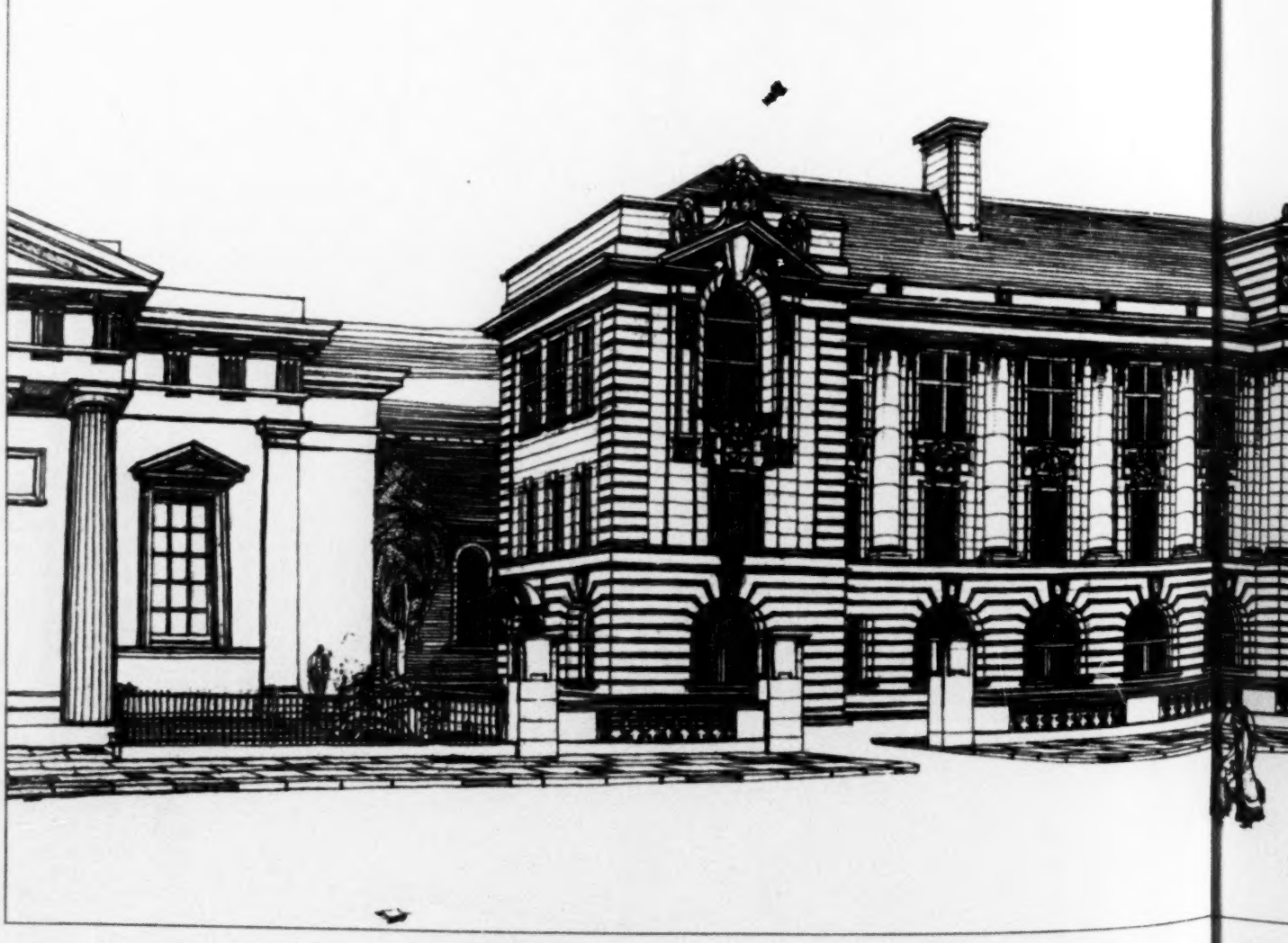
Sprague & Co., Ltd. 4 & 5 Addle Hardng St. Fetter Lane, E.C.

BRIDGE, PARIS: NORTH APPROACH

WALSALL MUNICIPAL BUILDINGS COMPETITION: SELECTED DESIGN.

Mr. J. G. Gibson, A.R.I.B.A., Architect.

EXTERIOR PERSPECTIVE VIEW



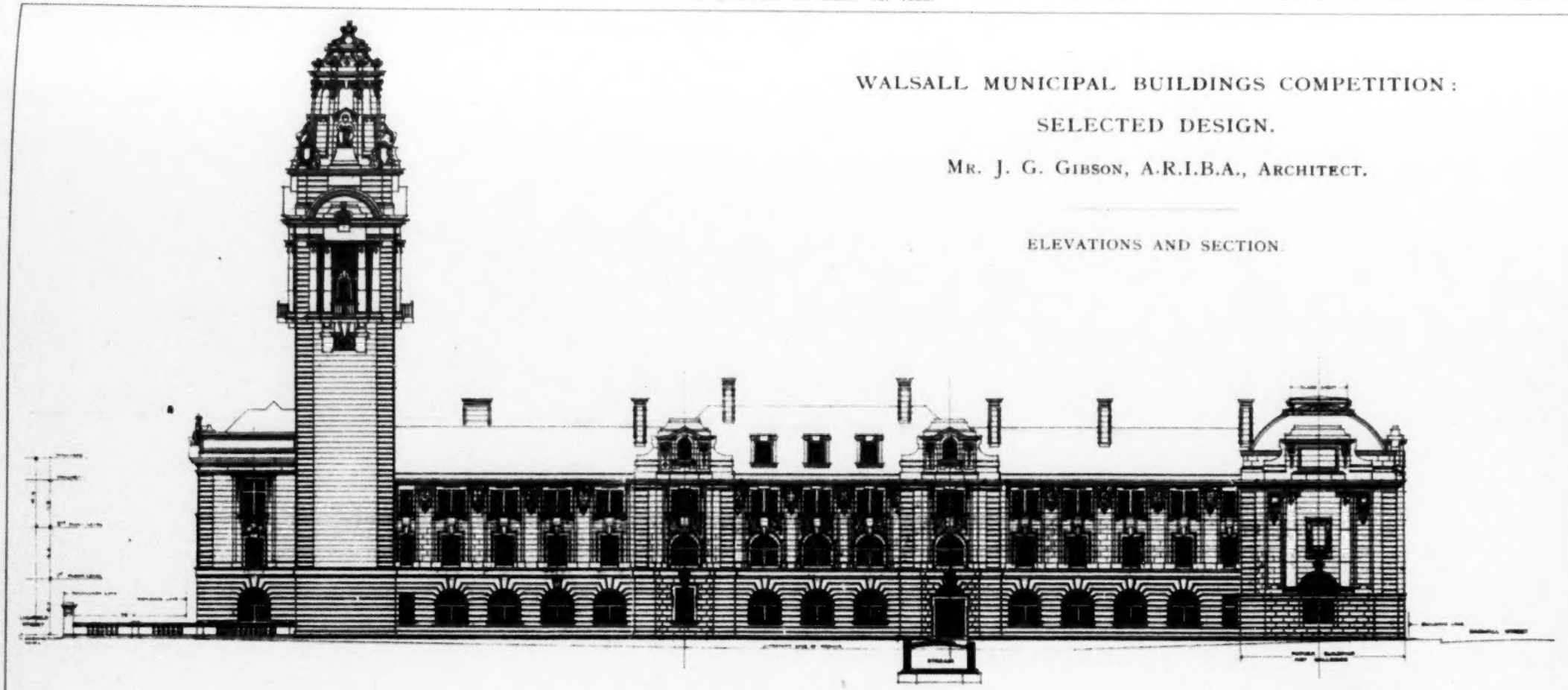
INK-PHOTO. SPRAGUE & C°. LT°. 4 & 5 EASY HARDING STREET, FETTER LANE, E.C.

WALSALL MUNICIPAL BUILDINGS COMPETITION:

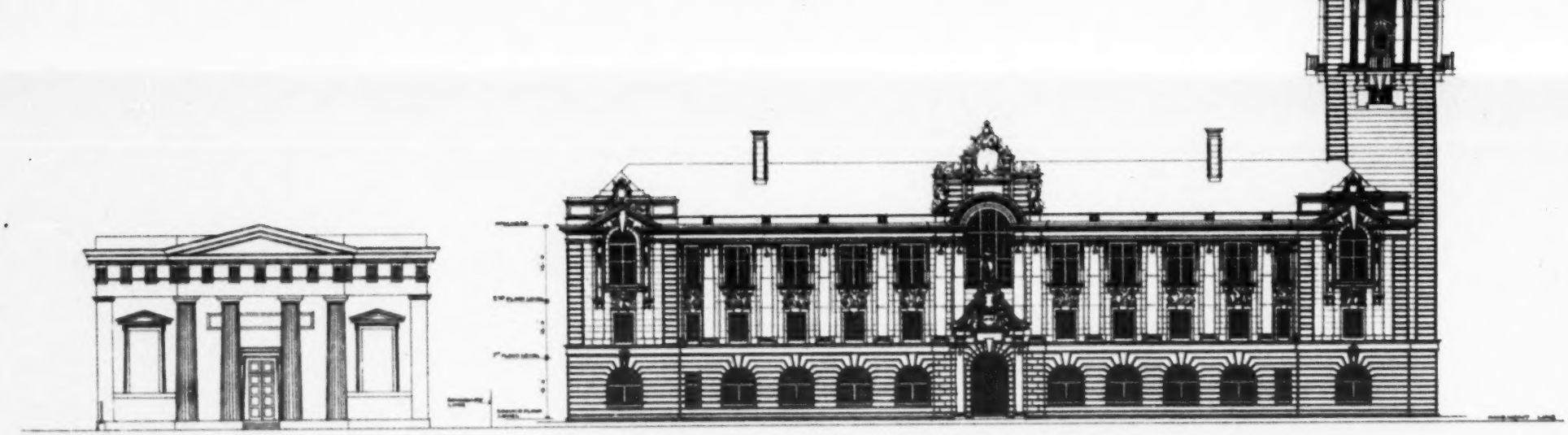
SELECTED DESIGN.

MR. J. G. GIBSON, A.R.I.B.A., ARCHITECT.

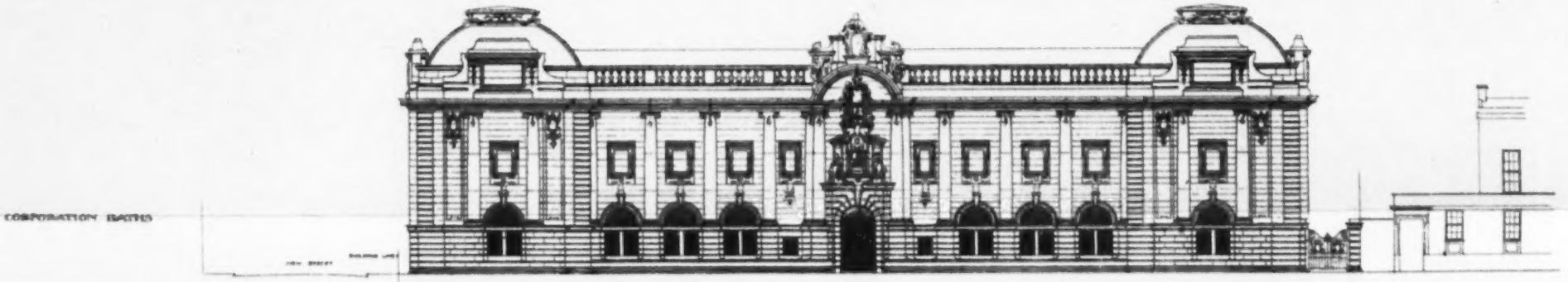
ELEVATIONS AND SECTION.



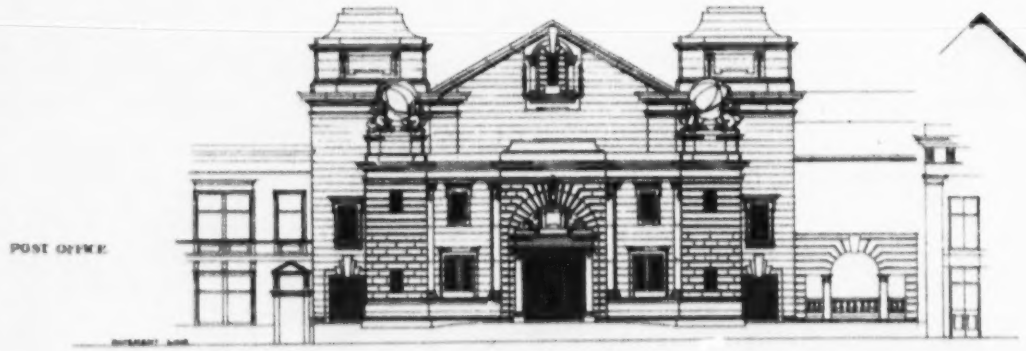
ELEVATION TO NEW STREET



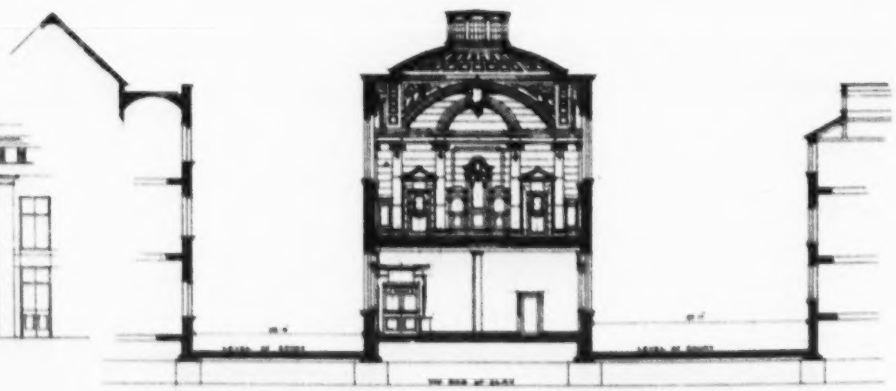
ELEVATION TO LICHFIELD STREET



ELEVATION TO DAWALL STREET

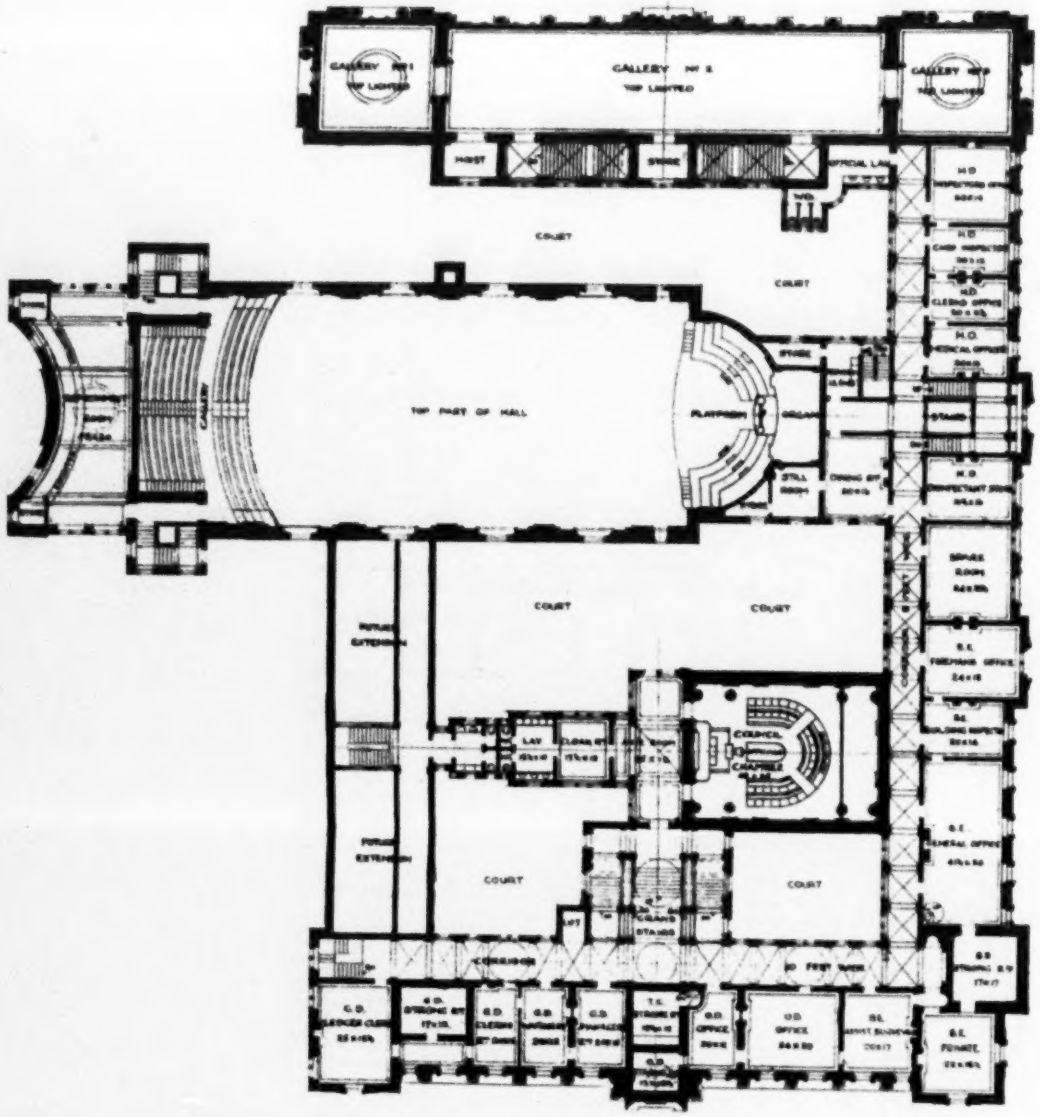


ELEVATION TO LEICESTER STREET

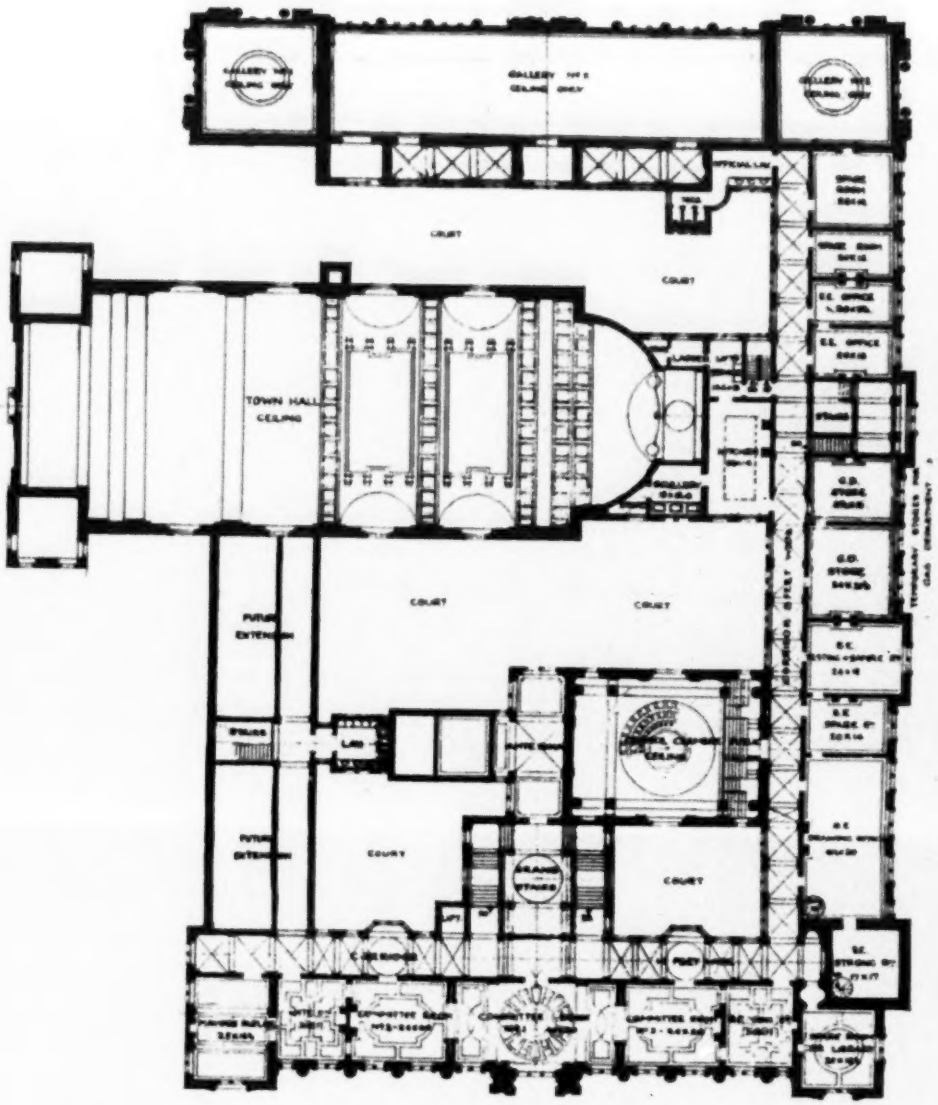


SECTION ON LINE D-D

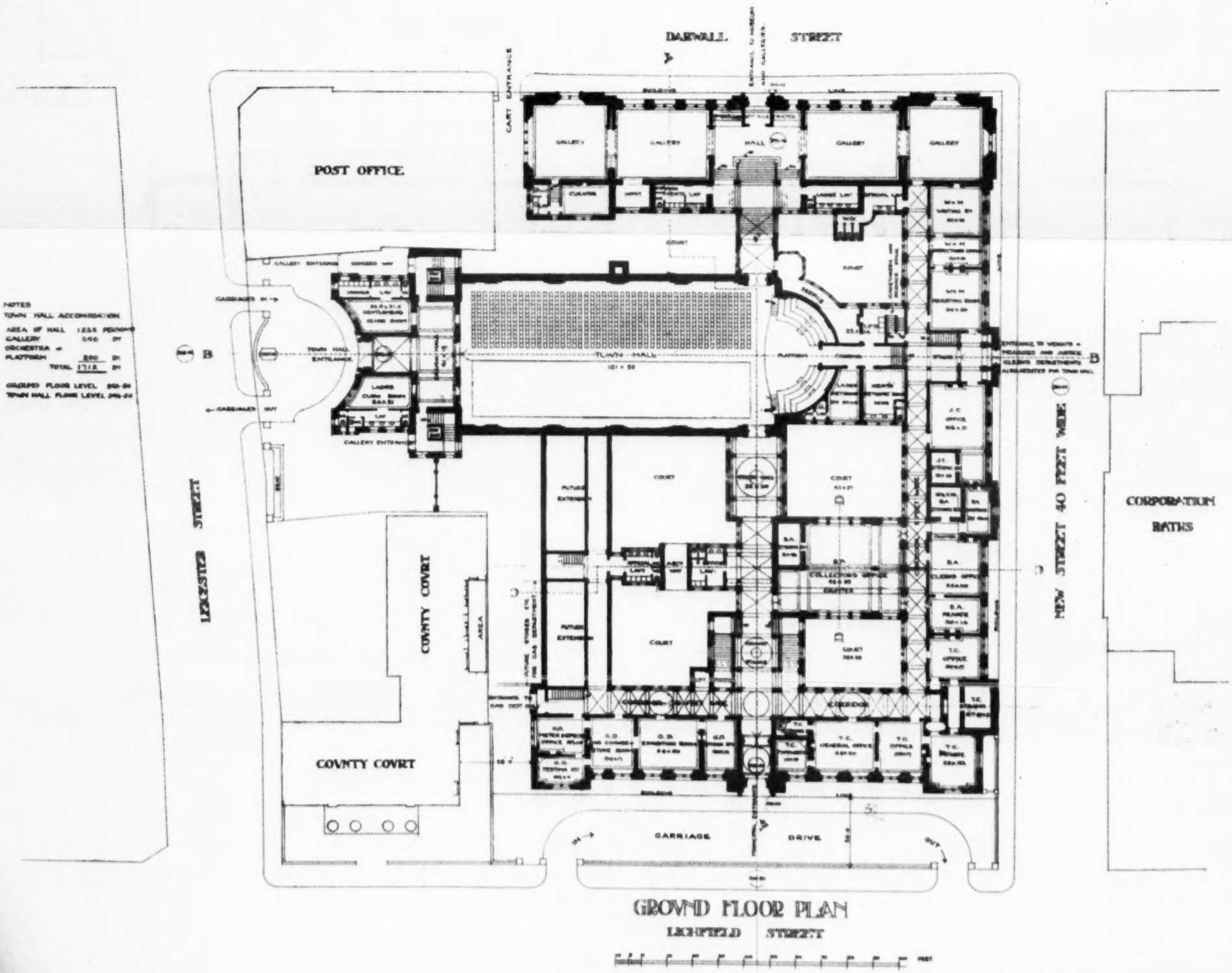
INK-PHOTO, SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.



FIRST FLOOR



SECOND FLOOR



GROUND FLOOR PLAN

LICHFIELD STREET

IRR. PHOTO. SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

WALSALL MUNICIPAL BUILDINGS COMPETITION: SELECTED DESIGN.—Mr. J. G. Gibson, A.R.I.B.A., Architect

PLANS.

entrance to Leicester-street, this being nearest the town, and ample accommodation for carriages can be found in this street. The grouping of the departments was governed by the light or aspect required, the Borough Engineer having north-east light, and the Town Clerk being placed adjacent to the principal entrance.

The suggested art galleries have been worked out in sufficient detail to show that they will form an integral part of the complete scheme.

It is intended to build the whole of the frontages with local sandstone from Penkridge Quarries. This is of a fine warm colour, and will prove very suitable for the atmosphere of the town.

The roofs will be covered with silver-grey slates. The interior decorative parts are suggested on the section, and will be carried out in hardwood panellings, while painted decorations will be largely relied upon for the ultimate effects.

It is proposed to use 'low-pressure' steam heating for the buildings; very plain and simple fittings in the way of radiators will be used. The vitiated air will be extracted by means of electrically driven fans, and the whole buildings will be lighted by elec ricity.

The estimated cost amounts to 55,000*l.*, exclusive of the tower and stone external facing to the new street; but the Town Council are determined to erect the tower at the same time as the first part of the buildings, and tenders for the work will be asked as soon as the working drawings can be got ready."

Mr. Gibson's plan appears to us quite admirable, especially in the arrangement of the corridors and the approaches to the large hall. In this respect we recommend it to the attention of architectural students, many of whom we fear, at present, have a tendency to neglect plan in their enthusiasm for picturesque sketching.

COMPETITIONS.*

In no other profession that I know of is there a path open by which any member of the profession, however little known, may with perfect propriety attempt to secure the prizes of the profession with no other assistance than his own ability and skill; this privilege belongs, however, to architecture. A very considerable proportion of the public work which is carried out in this country is offered to the best man, without restriction, by public advertisement. The method of doing this is known as Competition, a word which has a special meaning among architects a little different from that which it has when used by merchants, manufacturers, or tradesmen. It is surely worth while to give our attention to some of the aspects of so unusual a mode of procedure as architectural competition.

Having begun by setting forth the greatest of the advantages which competitions have to offer to our profession, I am almost bound to add that the profession as a whole pays a very heavy price for them; so heavy, indeed, that were there no other benefit we might be disposed to reckon that the privilege is dearly bought. There is, however, another benefit which must be taken into account, and which serves to turn the scale. I allude to the value as professional training of an opportunity of trying one's hand at a bit of actual work. Such an opportunity is—or at least may be—of the greatest value to those who avail themselves of it, and justifies me, if a justification is sought, in bringing the subject forward at the outset of an academic course.

The individuals who desire to promote the erection of a public building, and have the control of the arrangements, very often take it as a matter of course that they should obtain the design, and even appoint the architect, by the method of competition; that is to say, they invite architects to submit designs, they in some way arrive at a selection, and they very often entrust the erection of the building to the architect whose design they have chosen. Whether in pursuing this method the promoters are following the path of wisdom does not concern you and me. What I am telling you is that which is actually customary. It very seldom occurs in the case of buildings for private owners, and it does not invariably occur in the case of public buildings, that the promoters have recourse to competition, but it occurs sufficiently often to justify me in saying that it is customary.

Sometimes recourse is had to an invitation by an advertisement in the public newspapers to which any one may respond. At other times only a certain number of architects are invited by direct invitation. This last method is called a limited competition, and, of course, it is seldom open to men who have not yet begun to make a name for themselves. We will consider the case of public competitions first.

In this case the designs are invited by advertisement in some of the daily papers or professional journals, or both, and it is usually set forth that the competitor whose design is considered the best shall receive a money premium, and usually a second premium and even a third are promised, smaller in amount; and beyond this the promoters do not, as a rule, pledge themselves; though, of course, there is behind the expectation that the successful man will be the architect of the building.

The promoters always find that it is necessary to prepare and issue some kind of description of what they want their building to be, and this document is often a very imperfect one. Occasionally the promoters (as I shall call the persons who issue the invitation) are wise enough to call in an experienced architect; and he, with more or less trouble, makes out for them a statement of what is required. Mostly, however, they do not think that at this stage they need any help, and very often there are imperfections in their work which might be avoided, and which lead to trouble. But even when there is much that is defective, the fact that it relates to a real building, a real set of wants and requirements, and a real desire to build, makes the preparation of a competition design a better—a far better—lesson to a young architect than a competition for prizes offered by such bodies as the Royal Academy, the Royal Institute of British Architects, or the Architectural Association, good and useful as the latter are in their own way.

It is now usual to promise that the advice of an architect of standing shall be taken in the adjudication. He is usually known as a professional assessor. It is, unfortunately, often customary to stipulate that if the architect who obtains the first place be employed to erect the building, his premium shall merge in his commission—an unfair custom. The instructions vary very much in quality, the most common defect being that they describe in far too much detail the accommodation required. For example, in a recent case the dimensions of all the rooms were given instead of the area, with a result that as there were several floors it was impossible to place rooms over each other. To tell a competitor that a room 20 ft. by 22 ft. is wanted implies that it must be very nearly square, whereas if it were directed that about 440 ft. superficial should be provided in a room of convenient shape, the designer would be much more free.

The most troublesome part of such a set of instructions to competitors is, however, that, as a rule, they not only prescribe with too much exactitude the accommodation to be provided, but they also fix the limit of cost without sufficient ground for believing that the promoters can get what they want for what they propose to spend. A plan of the site usually accompanies these instructions, and sometimes it is the custom to make a charge for each copy of instructions and plan; with the promise that the money paid shall be refunded to each competitor who actually sends in a design. This is not an unreasonable custom.

A date is usually fixed for the reception of designs, but it is very usual for that limit to be extended. Some system for securing that the authorship of the designs shall not be known is in most cases adopted, the general method being to sign the drawings with a motto, and lodge with the drawings a closed envelope with the same motto outside and the name inside. In a few cases architects are allowed to sign their plans with their own names. It is perhaps right that I should say that in my opinion these precautions generally answer the end proposed effectually. In a very important competition indeed, like that for the Law Courts for example, the authorship of many of the designs is known unavoidably to so many people that the mottoes are only a conventional screen; but, generally speaking, I believe that unless competitors themselves tell their friends (which is unfair), the authorship of designs submitted under motto remains unknown in most cases; though handwriting or some peculiarity in draughtsmanship, which is equivalent to handwriting, may sometimes betray an individual set of drawings. All this is to a certain extent anticipating matters, and we must now consider what should be the course of an intending competitor after he has obtained his instructions.

It appears to me that his first duty is to see the site. This, of course, may involve a journey, but if the competitor really sets himself to make a design which will fit the circumstances, he *must* take the nature of the site into account. Very few buildings indeed are designed successfully unless the site is considered by their designer and they are fitted to occupy it.

In many cases when a young architect goes to see the site of a building for which he intends to make a competitive design, it will be the first time that he will find himself face to face with the question of site at all seriously; and he may be glad of some suggestions as to what to look for. He will do well to ask himself the following questions and see how far the site supplies the answers:—1. Where will the building be approached from? *i.e.*, from which direction will the larger part of the people come who will make use of the building? 2. From which direction will it be best seen? 3. In which direction is it to front? 4. Is there an inequality of levels? Can such inequality be anyhow turned to advantage? 5. At what level should the ground floor be? 6. Is there any existing object or building with which the new building should either contrast or combine? 7. Is there an object which ought to be visible from the windows of the new building? 8. Is any part of the site specially open to storms and bad weather, or, on the other hand, specially open to sunshine and light? An architect who will put each of these questions to himself successively, and will extract an answer to each one from the plot of ground which he has before his eyes, will not have visited the site in vain.

Another benefit which a visit to the site may bring with it will be a chance of personally seeing the building materials in common use in the locality, if it be an unfamiliar one; and possibly some suggestions as to the kind of treatment which the exterior is to receive or is *not* to receive may be gained by noticing what has become too hackneyed in the district or what is appropriate to the district. England is not a large country, but it is infinitely diversified; and an architect with his eyes open, and who tries to form an idea of how he might most successfully fit in a new building into an existing locality, is very likely to benefit by seeing the locality with his own eyes.

Another preliminary which it is usually wise not to neglect is to visit some good and recent specimen of the sort of building, and, if possible, to converse with the people who have the use of such building. You will gather what has been done before. You may gather what are the most recent improvements or innovations in the class of building to which yours belongs; and you may perhaps gather useful indications of the modifications which the people who occupy it consider would, in their judgment, remove difficulties in working or introduce new facilities.

We have now reached the stage when the designer must set to work with preliminary sketches of *plan*. The first thing needful is to work the requirements into his head, and this is usually best done by making out plans, often by revising and amending the sketches again and again. The most important feature of the whole design is unquestionably *the general disposition of the plan of the principal floor*, and you must be prepared to reconsider and revise and improve this down to a very late stage in the preparation of the design. It may very well happen to you, as it has to others, that after working for days or even weeks on one plan, a new one unquestionably better suggests itself. If that occur, do not hesitate to adopt it at whatever sacrifice of previous work. Your great object is to succeed, and if a stroke of luck or genius reveal to you a means of doing something obviously better than you were doing, you will deserve to fail if you do not adopt that means. I do not propose here to give you a description of proper planning, but I will just say that in a good plan the required accommodation is provided, and no more. The relation of the different rooms to one another is the most convenient possible. Every room is of a good shape and of the prescribed size, and well lit. The fewer corridors, the better the plan, but what there are *must* be roomy,

* Address delivered to architectural students at University College, October 8, by Professor Roger Smith.

airy, direct, and light. If there are internal courts for light, it is to be regretted; but in a large building they cannot always be avoided. Let them be large, and where practicable open on one side for better ventilation. Avoid top lighting and top ventilation where windows are possible. Of course, billiard-rooms, museums, and picture-galleries are exceptions to this rule. Staircases must be well placed, convenient, light, airy.

The building must be planned from the first with an eye to the possibilities of architectural treatment inside and out. Trial sketches of elevation and section must be made as the plan goes on; and if your plan obstinately refuses to give you good architectural opportunities you must alter it, just as you would if you found you could not light some of your rooms. Finally, the design takes shape as a complete design. You have done your best in planning, in elevation, and, above all, in section. Now do your level best in draughtsmanship. It conduces to success that the drawings should be effective and their general aspect pleasing. If the conditions permit a perspective, do not omit as good an one as you can possibly make or get made. Do not attempt to infringe any of the directions to competitors; but within the letter and spirit of those conditions do not spare any pains to make a good set of drawings. A report usually accompanies the plans. Make it brief. It is your drawings, and not your report, that will win or lose the competition. Lastly, an estimate is asked for. It is usual and sufficient for competitive purposes to make a cubed estimate. Make it honestly, supply the figures, and the price at which you rate them, and be quite sure that the amount of the estimate will influence the result. Of course, you will, if you are prudent, cube up your design more than once as it begins to take shape, and if you find that your building contains so many cubic feet that your price must be an impossible rate per square foot (fourpence per foot, for example), see if you cannot condense your building; and be fully sure that, supposing it can be done, if you do not do so, another competitor will. In some little experience as an assessor, nothing has surprised me more than the difference in this respect between the work of competitors, each giving the accommodation required, but one diffuse and the other compact.

At last the design is completed and sent in, and the competitor is probably by this time too eager after success to care a straw for the gains which failure cannot take away from him. The chances, suppose there are only half a dozen competitors, are apparently five to one against you, but they may be very different. If you have taken very great pains you may very possibly have reduced the odds. If you have a spark of architectural genius or have had a lucky inspiration, in this case your chance may be a very good one indeed; but settle it in your mind that you are very likely to fail, and ask yourself, Supposing I fail, has it been worth while? Very few beginners, at any rate, will hesitate to say, if they are candid, that it has been well worth while. The time may come when they will have learned the lessons which competitions can teach, and will not look on competitions as exercises; but the student and the young architect starting in his profession have a great deal to learn; and grappling with one of the problems of real life and work, possibly an important problem, will have taught him a great deal which he must acquire if he is to practise his profession successfully, and which will help to equip him for the future, whether he finds it of advantage to engage in many more competitions or not.

Lest I should be misunderstood, let me say that I do not advise engaging often in competitions merely as exercises. When you go in, go in to win; give your best attention and your best powers to the preparation of the design. I have already urged you to keep your mind open to improvements that occur to you down to a late stage in the design. I think it also useful to suggest that you give careful attention to the part that naturally interests you least. You are not likely to succeed unless your work is good in planning and also good in architectural treatment, and if it happens that you have a decided bias towards either of these two, be very attentive to the other.

Pains should be taken in the get-up of competition drawings, and though there is no great good in preparing a large and unnecessary number, sufficient drawings should be made fully to show the design; and if circumstances admit, some details should be furnished, well drawn and striking if possible. When perspectives are admitted and not restricted in number, one or more perspective sketches of portions—especially of interiors, if there are good points to illustrate—are serviceable.

Of course, a competition is seldom if ever decided on these additional drawings, but they contribute to draw attention to its possibilities; and suppose that two designs are practically equal as to the merits of their planning and their general treatment, the details, if good, may very well serve to turn the scale, and very properly so.

Let me, however, urge that genuine professional employment, coming to a young man through his connexion, should never be interfered with by a competition. Perhaps a limited competition is an exception to this rule, because the invitation to engage in it really comes from a man's connexion; but if the choice lies between neglecting a modest commission from a real client and giving up a public competition, the path of prudence leads in the direction of doing your client's work thoroughly and letting the competition go.

Lastly, let me urge that it is the duty of an unsuccessful competitor to accept his defeat like a gentleman, and not to fill the air with lamentations, or to try to attack his successful rival behind his back.

(To be continued.)

ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.

A Home Counties meeting of the members of the Association of Municipal and County Engineers was held at East Molesey and Hampton on Saturday, October 6. The members met at the Castle Hotel, East Molesey, where they were received by Mr. H. J. Robertson, Chairman of the District Council. Mr. E. G. Mawbey (Leicester) presided, and there were present Messrs. W. Weaver (Kensington), W. N. Blair (St. Pancras), J. P. Barber (Islington), A. H. Campbell (East Ham), W. H. Savage (East Ham), A. M. Fowler (Westminster), J. A. Angell (Beckenham), R. J. Thomas (Aylesbury), A. D. Greatorex (West Bromwich), J. S. Pickering (Nuneaton), Jenkins (Walton), Smith (Kettering), Chambers Smith (Sutton), T. Cole (Westminster—Secretary), J. Walker (Croydon), Shone (Westminster), J. Kemp (Hampton), J. Stevenson (Molesey), and others.

Mr. J. Stevenson, Engineer to the Urban District Council, read a paper on some of the public works in East Molesey. He stated that the district was sewered in 1893-5, Mr. J. C. Melliss being engineer. The high-level portion, comprising quite three-fourths of the district, gravitated to the disposal works, where the sewage was pumped from a deep pump-well into the precipitating tanks. There were also two Shone ejector stations for raising the sewage from the low-level areas of the district into the high-level system. The scheme was one of the best and most water-tight schemes that had been carried out in the Thames valley, and up to the present time the sewers had worked in an excellent manner. The sewage, on being received at the disposal works, was precipitated in tanks, sulphate of ammonia and lime being used in the treatment, and occasionally sulphate of iron when the sewage was of a strong character, and atmospheric conditions very high. The supernatant water was then passed on to the land and dealt with by intermittent downward filtration. Under the surface was a stiff clay, varying from 1 ft. 9 in. to 2 ft. 6 in. in thickness, and it had been imperative that this should be broken through, additional drainage provided, and the land levelled in order that stagnation on the surface should be avoided and a proper effluent obtained. The house refuse collected in the district during the past four years had been used in lightening and levelling the ground and improving the filtration area. This was all properly selected and screened upon its arrival at the works, the decaying vegetable and other matter burned; this was then screened and the clinker broken and placed around the land drainpipes. The sludge from the precipitating tanks was pressed into cake and disposed of to local farmers. The average dry weather flow was 22½ gallons per head, and the cost of the main sewerage scheme and sewage disposal works 37,250*l*.

The Chairman proposed a vote of thanks to Mr. Stevenson for his paper, which he said was excellent in quality and brevity.

Mr. A. M. Fowler, London, said that precipitation and downward intermittent filtration were the principles of sewage disposal upon which the Local Government Board pinned their faith, and until the Royal Commission issued their report they must take it that that was the best system before the country.

Mr. W. Weaver, Kensington, said that sludge-pressing was an expensive process. The question was whether some of the refuse could not be mixed with the sludge and sold to farmers in the district as manure. He had had a good many requests from farmers in that district, and the question was whether they could not sell it to the farmers without the cost of pressing.

Mr. Stevenson, in replying, said the water test was applied to all the main sewers, and the pipes used were Doulton's self-adjusted, Hassall's single lined, and Hassall's double lined.

Mr. J. Kemp, Surveyor to the Urban District Council, read a paper on the sewerage and sewage disposal works at Hampton-on-Thames. He said that, owing to the condition of the district with the level of the ground water so near the surface, it became evident to him that any scheme of sewerage should be accompanied by a scheme for the permanent lowering of the subsoil water also if the full benefits of drainage were to be reaped by the inhabitants. He also recommended the construction of surface-water sewers concurrently with the construction of the soil sewers in those roads not already so provided. It became apparent that the sewage must be pumped, and the site of the disposal works must be away from the Thames and the water companies' intakes, and thus in the highest part of the district. After considering the geographical configuration of the district, he came to the conclusion that it was an ideal one for the application of the Shone system in its entirety. The advantages of this system were the construction of comparatively shallow sewers, the saving in cost, the facility of laying the sewers so as to be watertight, and of constructing beneath the same subsoil drains with free outlets, so as to lower permanently the subsoil water, and so reduce the possibility of infiltration into the sewers. The scheme as designed divided the district into eight areas, in each of which at the lowest point an ejector station was constructed, containing automatic ejectors in duplicate, each ejector being estimated of sufficient capacity to discharge the whole of the sewage from the district when fully built upon. The sewers gravitating to the several stations were mainly 7 in. in diameter, with 5-in. branches for house connexions. With the exception of about two miles they were constructed with Hassall's patent pipes, the remaining length made up of Wakefield's patent. The sewers were all laid on a concrete bed which practically formed an arch over the subsoil drain. The sewers had gradients varying from 1 in 150 to 1 in 250, and at the head of each was placed one of Adams' automatic flushing apparatus; some of these discharged once in twenty-four and others once in forty-eight hours according to the length and gradient of the sewer. The scheme of disposal sanctioned by the Local Government Board was that known as the Intercepting, but before the works were commenced he heard of the Sutton experiments with bacteria beds, and after inspection of the Sutton works, the Council passed a resolution authorising a departure from the original scheme. The sanction of the Local Government Board for this departure was not obtained or sought, nor was it until the beds were nearly completed that they discovered the alteration. This occurred on the Council's application for further money to complete the works, which had exceeded the estimated cost. The Council received a severe lecture, and the Board's refusal to grant any further sanction unless they would agree to lift the effluent from the third contact bed and pass it overland. The Council had no alternative but to agree to what they considered useless expenditure, and subsequent experience had proved that they were right, as the final effluent from the beds was and always had been of a very good and uniform quality, and satisfactory to the Thames Conservancy. The effluent was used for condensing, feed, and cooling purposes with no ill effects on the boilers in the shape of incrustation; in fact, it was the only water on the works. The sewage was delivered by the ejectors into a screening chamber, where it passed through a ½-in. mesh

screen, and from thence to the bacteria beds without sedimentation. The beds were fifteen in number, 4 ft. 4 in. deep; the coarse beds filled to within 4 in. of the top with coarse clinkers rejected by a ¾-in. sieve; the medium beds filled with clinkers passed through a ¾-in. sieve and rejected by a ¼-in. sieve; the third or fine beds filled with the residue of the material from the second beds, and consisting largely of fine powdered clinkers and ashes. The liquid capacity of each of the coarse beds when newly constructed was 20,000 gallons, or 46 per cent. of the total, and this capacity had not diminished, although the beds had been working since December 8, 1898, when the first connexion was made with the sewers. A coarse bed was filled within 4 in. or 6 in. of the surface, allowed to stand full about two hours, and then emptied slowly, taking about one hour, and this process was repeated with the medium and fine beds. In each case when a bed was emptied the valves were left open until the bed was required to be filled again to assist æration. Each bed was allowed one week's rest in five, so that one set of three beds was always resting. According to a report prepared by Mr. C. E. Cassal in October, 1899, the Hampton sewage was strong domestic sewage, absorbing in four hours 12·74 parts per million of oxygen from permanganate, and containing 79·32 parts of saline ammonia and 15·2 parts of organic ammonia per million. The percentage of purification obtained was of oxygen absorbed 96·9, ammonia reduced 97·5. In his opinion no better material than furnace refuse could be obtained for bacteria beds. By its use the largest possible liquid capacity was obtained in the beds, which was a great consideration in the cost of construction, nor did the material deteriorate by disintegration. There was no doubt that by the adoption of the bacterial method of treatment, the District Council had saved a large annual expenditure which would otherwise have been incurred in the cost of chemicals, labour, and sludge pressing. Although only one analysis had been taken by the Council, the effluent from the bacteria beds had always satisfied the Thames Conservancy, and, so far as his experience went, there was no necessity whatever to pass the effluent from the beds overland. He was pleased to say that the sewers, although in many places under water, were practically tight, and therefore a minimum quantity of sewage had to be lifted and dealt with by the beds. The cost of the whole scheme was 61,915*l*.

Mr. W. Weaver, Kensington, proposed a vote of thanks to Mr. Kemp for his paper. He complimented the district upon the excellent manner in which the roads were maintained.

Mr. A. D. Greatorex, West Bromwich, congratulated Mr. Kemp upon having thrown over the original scheme and adopted the bacteria treatment of the sewage. It was well known to the members of the Association that he had for a time been dealing with a large quantity of sewage on this system, and as his experiments had been running twelve months, he could give analytical results which bore out Mr. Kemp's statement that sewage could be dealt with sufficiently without the aid of land. One portion of the sewage was dealt with on the high level through a coarse bed, and then the effluent was passed on to the land. That bed had dealt with in twelve months some twelve million gallons of sewage, and the average of eighteen analyses was—oxygen absorbed in four hours, ·369; nitrogen, nitrites, and nitrates, 1·260; albuminoid ammonia, ·0416. He thought they would all agree that was an extremely good result. The low level had also a coarse and a fine grain bed. The Local Government Board, in sanctioning the loan, insisted that the effluent should be put on the land, and to do that they had to pump it. Those beds had dealt with forty million gallons in twelve months, and the result of a similar number of analyses was—oxygen absorbed in four hours, ·457; nitrogen, nitrites, and nitrates, ·52; albuminoid ammonia, ·0683. These results were very satisfactory and largely in excess of any standard laid down at the present time. He was absolutely convinced that there was no necessity to place the effluent from fine beds on to the land. He was sorry only one analysis had been made at Hampton, and he thought they would be well advised to have samples analysed, once a quarter, if not once a month.

Mr. J. S. Pickering, Nuneaton, said he would hesitate to accept the statement that the liquid capacity of the beds had not diminished. The flow from the beds ought to be gauged by meter, as the statement in the paper seemed incredible.

Mr. Shone, London, expressed pleasure at the suggestion of Mr. Greatorex in favour of taking frequent analyses of the effluent. He knew there was much difficulty in persuading members of local authorities to go to the expense, as they did not realise the necessity in the same way as the professional man. He had never seen an effluent to be compared with that obtained there. Mr. A. M. Fowler and Mr. Santo Crimp had said the same thing. There was also no sludge, which he attributed to the adoption of the separate system, and to the fact that the large main acted as septic tanks. Thus, when the sewage was driven out by the ejectors, it absorbed some of the compressed air, and doubtless arrived at the outfall charged with this compressed air.

Mr. A. M. Fowler, Westminster, said he had the courage of his convictions, and had yet to be satisfied that there was any better system than that recommended by the Local Government Board universally, that of precipitation and downward intermittent filtration.

The members then proceeded in brakes to the East Molesey Sewage Disposal Works, over which they were conducted by Mr. W. G. Garland, Chairman of the Drainage Committee, to the Lambeth Water Company's extension works, new storage reservoirs, and intake works at West Molesey (where luncheon was served), the sewage disposal works at Hampton, and the Southwark and Vauxhall pumping station at Hampton.

THE ARCHITECTURAL ASSOCIATION:

SCHOOL OF DESIGN.

The preliminary meeting of the School of Design of the Architectural Association was held on Tuesday evening at No. 56, Great Marlborough-street, W. (Mr. W. H. Seth-Smith, President of the Association, in the chair), when short addresses were delivered by Messrs. Aston Webb, A.R.A., and Beresford Pite. The classroom in which the meeting was held was altogether too small for the occasion, and the Chairman, in the course of a few appropriate preliminary remarks to the students, said that such a large meeting afforded a good illustration of the Association's need of larger premises.

The Study of Materials.

Mr. Beresford Pite said he had chosen a particular subject with a view of trying to indicate some new and, perhaps, original lines of study. The subject was the study of materials. An acquaintance with the nature and uses of the materials for which the architect had to prepare designs, or, more properly, from which he had to design, was of fundamental importance. The acquaintance should not be slight or of a merely general character, but should extend to a certain knowledge of those qualities of each material that were serviceable to building work. Such definite comprehension of each material would, in the designer's mind, ally itself to the intention and purpose he had in view, and procure that harmony between the means used and the end to be obtained, which was a proper element of beauty in anything that a man did. A satisfactory architecture could not be produced with unsatisfactory materials, and ignorance resulting from the neglect of their study was not compensated for by a knowledge of æsthetic form or details of ancient architecture, or any facility in their rearrangement for purposes of modern buildings. Sound and ingenious construction was an element in the art of beautiful building which was as essential as the right and sympathetic use of material, and with which it could not but be closely allied. The effect of this relation between construction and materials upon design and the resulting work of architecture could be readily illustrated by recalling many instances of constructive skill displayed in unsuitable and unlovely material, and of beautiful materials which had been badly constructed and designed. There should be no confusion of thought as to that art which selected and placed materials usefully and beautifully in a building and the science which might attain a constructive end regardless of the means it employed. Without constructive science building was impossible, but unless exercised in suitable materials and with a proper knowledge of their nature and use, good architecture was equally unattainable. As æsthetic design could not exist by itself in architecture, apart from building, both of these qualities (though the æsthetic relation of each might at first sight seem remote and secondary) must be in harmony. Materials, construction, use, æsthetics, were the progressive order of study, but each in relation to the other, and beauty of architecture was the result of the harmonious relations of those elements. The effect on the mind in the achieved building was realised in the reverse order. First, the pleasure of the æsthetic quality of form; then satisfaction with a serviceable and dignified composition; then its security, fitness, and economy of construction; and lastly material imparting substance to the whole. Material was constructive unless it was purely decorative, but it was also æsthetic. The quality of texture was little understood by English architects, though in France they were capable of giving texture in architecture. This æsthetic element in the workmanship of each building material was of great value to fine architecture and the neglect of it would be fatal to real beauty. The excellence of material, such as marble, &c., did not enter into this view of the subject at all. Until form, plan, construction, and texture were mastered by the student in their combined expression, the decorative use of materials had better be dismissed from the mind. It was a subject which was very likely to mislead and to prevent any realisation of the subtle quality of texture, at once constructive and artistic, which could become an element of beauty in our architecture. Closely allied with the consideration of a building material was the workmanship of it, for a design must not only be capable of being expressed fitly in the intended material, but should be such that the kind of workmanship employed should be emphasised and used so as to exhibit its own type of craftsmanship to the greatest advantage. As an illustration he would refer to the joinery in the Law Courts. They would find that the joinery was executed with masons' joints; that was to say, the mitres of the mouldings were returned on the solid in the woodwork. A mason did that in masonry, but a carpenter did not do it in carpentry. That was a fair example of the wrong expression in material of the workmanship allied to that material. The workmanship of the material must most fitly express the quality of the material, and *vice versâ*. He excluded the design of carved or decorative details in order fully to consider the terms of relation between what were considered architectural qualities and so as to understand the artistic quality of material applied to surfaces. Architecture had, unfortunately, for a whole century long been under the spell of an archæological pedantry as unnatural as onerous, and with which it had struggled for a lasting and satisfactory type of expression. It had used architectural forms because they had been used in the past, and not because they were specially applicable to the material with which one had to design. Architecture had almost ceased to have a power of imparting expression and character through the material to the building. The ceaseless change of form in decorations, of features and details, had deprived our civil architecture, at all events, of all seriousness of purpose. Cleverness in design, or what was known as such, was the common ideal, whether the gift of cleverness was possessed or not. It was superficial cleverness, and was dangerous to the student and inimical to the progress of national art. The field of study had to be shifted, and the outlook of the student turned from the service of abstract designs and drawings to which he had hitherto gone for his artistic training. The student had hitherto studied the forms of the past, and had fairly exhausted the available field of research. Let him begin with a new tradition, and devote practical investigation to the qualities of the matter of buildings and to the craftsmanship of their application to the whole and parts, and he will find the whole world of constructed buildings, ancient and modern, lay before him for consideration and study. He would then examine, and discern with growing enthusiasm and delight that ancient buildings contained beautiful examples of treatment of material and delightful craftsmanship. That field of study would offer a great variety of interest in the different nature of each material. All the materials in use would yield their different and distinct characteristics to the thoughtful designer. All offered to the student who would sympathetically study and employ them

suggestions for design which might issue in living character and vitally rational buildings.

Design.

Mr. Aston Webb said that what he had to say would be very informal, and was only intended for young students, and not for publication; in fact, he felt that a T-square and drawing-board were more important than a tongue in matters of architecture. William Burges was once called upon by the Chairman at an Association meeting to speak on the subject of colour, and after some hesitation Burges rose and said: "Colour is a gift from God, and it is no good talking about it." He then resumed his seat and would say nothing more. With that remark they would all agree, except that some of the colour now to be seen about might be ascribed to another source, so hot and fiery it often was. Two years ago he made a few remarks on planning; this time he proposed to take a much more thorny subject, viz., design. Planning did not seem to rouse the ire of people, but on design he hardly supposed that two of his hearers were agreed. But they would all agree to try and see good wherever good was, whatever the style. It was recorded of William Morris that he wrote the very beautiful prologue to *The Earthly Paradise* in a little wayside railway waiting-room, while waiting for a train. That alertness of mind and preoccupation of subject which enabled Morris to do that, were the qualities which architects had to encourage: they should carry their powers of observation and thought wherever they went, and not keep them merely in office hours. The thing that was once first thought about in design was drawing, and there was a well-known axiom that the first thing was to draw, the second to draw, and the third also to draw. That idea had been exploded of late, he thought, and if the word design were substituted for drawing, it would probably be better. Ruskin once drew on a blackboard, in the course of one of his lectures, a charming and delicate wreath of leaves, and, turning to his audience, said, "No man has a right to be an architect unless he can draw leaves like that." Now we should perhaps think that a man who could draw leaves like that would make a better painter than architect. In the Council-room of the Institute of Architects was a little sketch by Christopher Wren, a rough little section with some figured dimensions, and with no beauty of draughtsmanship about it. If he (the speaker) were addressing any students who were not very great draughtsmen, he thought it would give them courage when they saw that drawing. He thought that sketching, beyond a certain point, was almost a dangerous art, and he did not mind saying so because he had been a bit of a sketcher himself. Sketching was apt to deceive, and in sketching one might think one had done a rather good thing in the way of design, while it might be they had done nothing of the kind. When the President of the Royal Academy addressed the students last Gold Medal day, he pointed out to them that a man's reputation depended finally upon his completed work, not on his sketches. That might be a rather disappointing thing to say to young men who naturally could not get to completed works at first, but it was a very salutary and proper lesson for all to learn. If true of painters, to whom the President especially referred, how much more true was it of architects! An architect could get a sketch published, and in that way get a certain amount of reputation, but it was by the building that he was finally known and estimated. One of the first things he said to a young man who came into his office was this: "You have to show on paper something which cannot be properly shown on paper." They had to show a cube on the flat, and as soon as they began to realise the three dimensions together, the better. He knew buildings (some of his own, he feared) which had been studied too much from the point of view of the elevations, and the returns and the general effect suffered. They would find it a great help if they began from the beginning to think in three dimensions. Scientific men had an idea that there was a fourth dimension—a sort of metrical movement of the three other dimensions put together—and in architectural design there was the correct relation of the three dimensions that produced proportion and perfect design. Certain buildings had that sense of proportion in which the height, length, and breadth were exactly attuned to one another. In music there were chords which were perfectly complete, the "great Amen." The dome of St. Paul's seemed to him to be a sort of "Amen" in architecture, and he believed that no one wanted to improve upon it; it was a perfect thing in itself. The interior of Westminster Abbey, struck on quite different lines, produced a similar feeling. People troubled themselves as to whether the plan should precede the elevation, or *vice versâ*. That was all twaddle; the only way was to think of plan, elevation, and sections together—to think of the building as it would be in reality. Fancy St. Paul's dome being designed without thinking about the plan! Each part of a design should be worked together gradually up towards completion. In addition to that, to make a satisfactory building that much-neglected specification must also be brought in. In the specification were the materials, and in the earliest stages of a design one had to consider what materials were to be used. More than that, there was the question of foundation, for with a bad foundation the architect would not introduce tall towers, but keep his building flat and low, and so his whole design is affected. An interesting paper on the subject of the three dimensions was read before the Association two or three years ago by Mr. F. T. Baggallay, in which he pointed out how often all the features of a building were on the same plane in front; there was no variety and no suggestion of a third dimension. The features of a building when placed on different planes moved differently as one walked towards them, and in that way different effects were got—often very fine, and affording a living look to a building. Another matter of importance was the position of a building and the way it was seen and approached. Often a good deal of work was put into a portion of a building which could never be seen, while another portion, quite in view, was neglected and unconsidered. An architect could hardly go too often to the site while making his designs for a building. A sketch was too often put up from a particular point of view, and it was forgotten that the building would be seen from all sides. A sculptor was most alive to that, and he modelled his work in the middle of his studio, walking round it and making his figure right from all points. Architects ought to do exactly the same, and if they must make perspective drawings (and they could not help it if they were anything of draughtsmen), they should make them from various points. They should note where the walks and roads, &c., were. The position of the building was a matter that the architect ought to have a voice in; but unfortunately in the laying-out of towns the sites for buildings were not settled at all by an architect. Architectural advice ought to be sought from the first in laying-out any public improvement in any town. If that were to be done (and he thought there was a growing tendency in Local Authorities to do so), architects must be prepared to advise them properly. As to simplicity in design, it was important to understand words. No doubt all of them meant much the same thing, but he was not sure whether simplicity was the word intended. Simplicity, as sometimes understood, was apt to lead students astray, and he knew men who prided themselves on what they called the baldness of their designs. That was not what was meant by simplicity. He thought that what was meant was restfulness and repose, for that was the quality they wanted to get into buildings, and that was got by a quiet outline more than by the omission of detail. Think of the Houses of Parliament. What could be more dignified and, to a great extent, simple than the river front of those buildings? What more reposeful? And yet the whole face was covered—possibly with too much ornament, though that did not take off the magnificent effect of the river front. A very important thing in designing a building was to think of the silhouette against the sky. Chimneys, &c., in London were often fatal to the reposefulness of a design, but difficulties were architects' opportunities. As to the rectification of optical defects, they should be careful they did not exaggerate these. In the case of a column, the entasis was sometimes too much emphasised; and the stilting of a dome was often overdone. In the case of the dome of St. Paul's there was very little stilting, and yet the dome looked as well from Cheapside when one was near it as when one saw it from a distance. A distinguished sculptor once said to him: "No figure in architecture should be distorted, even a seated one placed high up;" and in trying to correct optical defects architects must guard against exaggeration and the falling into worse evils. In the case of the well-known difficulty of upright pinnacles against a spire appearing to fall outwards, the mediæval builders sometimes inclined the pinnacle a little inwards and sometimes mystified the connexion between them and the spire. How far utility was to interfere with the elevation was another point. He was inclined to think they should be combined, and the same remark applied to the plan and elevation. All architecture was a matter of compromise, unfortunately. A question that was very much in the air was as to the alliance of other arts with architecture. Every one agreed with that to a great extent, but it must not be forgotten that architecture had a distinct expression, quite apart from painting and sculpture; and that one of the greatest living architects, whose works they all admired, had not introduced much sculpture or painting to aid the expression of his buildings. He was not speaking against collaboration in the arts, but he felt he must put in a word for architecture, that it had an expression independent of the other arts, although it was far more complete if they were all represented. In regard to expression in a building, the late Mr. Pearson was once speaking to Archbishop Benson about churches, &c., and he said to the Archbishop: "When you go into a church you should ask yourself not 'is it grand; is it magnificent; is it splendidly built'? but you should say; 'does it send you on your knees?'" Well, that was what a church should do; that was its object, and if it did it also expressed in the highest sense its purpose. Some of Mr. Pearson's churches had that particular power—St. John's, Red Lion-square, and St. Augustine's, Highgate, for instance. There were living architects who could put into their churches that devotional spirit, which was certainly the highest aim an architect could have. In the same way, in designing such a building as Law Courts, they must try and give it a feeling of awe, and in the case of Parliament Houses (though he did not suppose any of them would be called upon for such work) they would have to give the building an expression of power. When he went over the new Parliament Houses in Berlin he felt humbled by that magnificent interior of Paul Wallot. It was a most impressive and magnificent building. If they did not have a Parliament House to design they would no doubt have a private house, and if so they should impress upon it a homelike beauty. In the case of almshouses they would impress on such a building a little public character, and at the same time the dignity and rest and quiet which was proper for the last years of life. But, as he said at the beginning, it was not much good talking about these things. After that night they must set to work and design for themselves.

On the motion of the Chairman a hearty vote of thanks was accorded to Messrs. Aston Webb and Beresford Pite, and the meeting terminated.

THE BUILDING TRADES' GIFT TO THE NATION:

HOMES FOR DISABLED SOLDIERS.

Mr. T. F. Rider, Past-President National Association of Master Builders, as Honorary Secretary to the Gift, announces the following further subscriptions which have again come to hand:—

	£	s.	d.
The *Builders' Journal* Shilling Fund (Subscriptions, first instalment)	57	12	0
Messrs. F. & H. F. Higgs and Workmen	10	0	0
Messrs. H. Stevens & Co. and Workmen, Southampton	6	17	3
Messrs. Harris & Wardrop and Workmen	5	15	3
Workmen of Messrs. Jas. Carmichael, Wandsworth	3	15	3
Messrs. George Nutter & Sons and Workmen	1	10	0
Workmen of Messrs. Perkins & Co.	1	1	0
Mr. Walter Dennison and Workmen	1	1	0
Workmen of Messrs. E. Chadwick & Sons, Dewsbury	0	18	9
Workmen of Mr. J. F. Godham, Greenwich	0	14	6
Workmen of Messrs. Sparrow & Sons, Nottingham	0	9	6

Established Church, Dundee.—It is proposed to build an Established church on a site at the junction of Lochee and Tullideph roads, Dundee. The architects are Messrs. Johnston & Baxter.

THE LONDON COUNTY COUNCIL.

THE first meeting of the London County Council after the summer recess was held on Tuesday in the County Hall, Spring-gardens, Alderman Dickinson, Chairman, presiding.

Chairman's Annual Address.—The Chairman occupied an hour and a half in reading his address, which dealt with the work of the Council during the past year. In reference to main drainage, he said the total amount of sewage treated in the year had been 79,382,570,830 gallons, and the weight of sludge sent to sea had been 2,288,000 tons. In connexion with this, three interesting facts appeared. The first was that, although the quantity of sewage increased every year the actual expenditure of the Committee upon maintenance had been 5,000*l.* less than in the preceding twelve months. The second notable fact was that a given number of gallons of sewage produced a less weight of sludge this year than they did last year. This showed that the methods of precipitation were improving, and that water which formerly had to be carried out to sea at great cost now ran into the Thames at the outfalls. And the third fact was that the effluent flowing into the river was now highly satisfactory, and the condition of the Thames was becoming better every year.

Loans.—On the recommendation of the Finance Committee it was agreed to lend Battersea Vestry 20,000*l.* and 5,145*l.* for electric lighting works; Camberwell Vestry 2,000*l.* and 9,035*l.* for street improvements, and 28,195*l.*, 500*l.*, and 6,500*l.* for depôt buildings, &c.; Greenwich District Board 10,475*l.* for dwelling-house improvement scheme; Hammersmith Vestry 16,360*l.* for paving works; St. George-in-the-East Vestry 5,295*l.* for paving works; Islington Vestry 3,187*l.* for electric light meters; Fulham Vestry 27,000*l.* for baths and wash-houses; Newington Vestry 24,500*l.* and 2,500*l.* for baths and wash-houses, and 2,150*l.* for underground conveniences; St. James', Westminster, Vestry, 8,095*l.* for paving works; Camberwell Guardians 7,260*l.* for purchase of premises; Guardians of Holborn Union 1,750*l.* for alterations, &c., to hot-water supply system at workhouse, and 1,250*l.* for purchase of land and premises; Guardians of Poplar Union 11,820*l.* for purchase of land; Guardians of St. George's Union 20,000*l.* for extension of infirmary; St. Marylebone Guardians 2,190*l.* for works at Southall Schools; Shoreditch Guardians 3,450*l.* for alterations to premises, and 2,040*l.* for alterations at infirmary, &c.; Guardians of Wandsworth and Clapham Union 1,250*l.* for furnishing of nurses' home, and 15,600*l.* for erection and furnishing of temporary buildings at Tooting Home; and St. Giles-in-the-Fields and St. George, Bloomsbury, Baths, &c., Commissioners, 13,500*l.* for baths and wash-houses.

Widening of Piccadilly.—The Improvements Committee reported as follows in regard to the proposed widening of Piccadilly between Hyde Park Corner and Walsingham House:—

"We have had under consideration an important proposal made by the First Commissioner of H.M. Office of Works, &c., for the widening of Piccadilly between Hyde Park Corner and Walsingham House. The First Commissioner states that in consequence of representations which have been made to him as to the congested state of traffic at Hyde Park Corner, especially at the angle of Piccadilly and Hamilton-place, he has had under consideration the question of endeavouring to obtain the assent of her Majesty the Queen to granting her Royal Warrant to enable a sufficient strip of the Green Park to be added to the street in order to widen the thoroughfare and facilitate the course of the traffic passing eastwards and westwards, without interfering with the traffic passing northwards by Hamilton-place. The First Commissioner is prepared to advise her Majesty to approve of this proposal on the understanding that the Council will undertake the expense of setting back the railings of the park and of paving the widened carriageway and the new footway. . . . . The present width of Piccadilly between Hyde Park Corner and Walsingham House varies from about 68 ft. to about 100 ft., and by the plan submitted by the First Commissioner it is proposed to increase this to a width varying from about 70 ft. to about 170 ft. The width of the new footway on the south side of Piccadilly will be about 24 ft. The width of the new carriageway near Walsingham House will be about 48 ft. This width will gradually increase to 58 ft. near Clarges-street, to 70 ft. between Half Moon-street and Down-street, and from Down-street westwards it will be increased to 90 ft. at Park-lane, and to about 120 ft. at Hamilton-place, whilst at Hyde Park Corner the width of the carriageway will be 170 ft. It has already been pointed out that the chief spot where the traffic is so frequently congested is at the junction of Hamilton-place with Piccadilly; hence the suggestion that the new width of the carriageway of Piccadilly at the spot in question should be as much as 120 ft. It is proposed that at this point there should be a large refuge in the centre of the road, and that at Hyde Park Corner the traffic should be diverted with a view to arranging that the traffic wishing to go to Hamilton-place shall use the carriageway to the north of the refuge, where the width will be 60 ft. The traffic passing eastwards and westwards along Piccadilly, and not desirous of using Hamilton-place, will pass to the south of the refuge, where the width will be 60 ft. The cost of re-erecting the railings and executing the necessary paving works is estimated by the Council's engineer at 30,000*l.* . . . and the length of the widened portion of the thoroughfare will be no less than 2,400 ft., or approaching half a mile. . . . We may state that for some time past we have been in communication with H.M. Office of Woods and Forests, who are the freeholders of most of the property on the north side of Piccadilly between Piccadilly-circus and Sackville-street, our object being to arrange for the widening of that portion of the thoroughfare. We have not yet succeeded, however, in coming to an arrangement with the Commissioners, but we do not despair of being able to make some arrangement with them when the existing leases expire. . . ." The Committee moved that "the estimate of 30,000*l.* submitted by the Finance Committee for the purpose be approved."

The recommendation was agreed to after a brief discussion.

Sanitary Inspectors' Examination Board.—It was agreed that the Council do address a letter to the Local Government Board asking that it may be authorised, under Clause (*c*) of the Memorandum of Association of the Sanitary Inspectors' Examination Board to appoint five representatives to serve on that Board, and stating that the Council will be glad if the President of the Board will receive a deputation from the Council in support of its request.

Tenders.—The following tenders for work at various fire stations have been accepted:—

Poplar and Bow Stations: Horsed Escape Sheds.—F. & F. J. Wood, 335*l.*

Hackney Station: Repairs, Painting, &c.—Vigor & Co., 87*l.* 10*s.*

Poplar Station: Repairs.—J. Jarvis & Sons, 98*l.*

Stoke Newington Station: Repairs, Painting, &c.—Vigor & Co., 75*l.* 10*s.*

After transacting other business the Council adjourned.

METROPOLITAN ASYLUMS BOARD.

THIS Board resumed its meetings after the summer recess on Saturday, the 6th inst. Sir E. Galsworthy presided.

The Asylums Committee submitted a plan for converting the convalescent home at Leavesden Asylum into officers' residences, and recommended that it be approved and forwarded to the Local Government Board, and, further, that advertisements be issued inviting tenders. It was stipulated that the work should be carried out under the supervision of the Surveyor to the Board. The estimated cost was 171*l.*

The report was adopted.

The Works Committee reported that Mr. Hatch, their engineer, was engaged at the present time on the preparation of seven sets of plans and specifications in connexion with the laundries of the North-Eastern Hospital, Tooting Bec Asylum, Joyce Green Hospital, Caterham Asylum, St. Anne's Home, Darenth Asylum, and the Eastern Hospital. Mr. Hatch pointed out that with his present staff, a period of at least six months must elapse before he could get the several works out of hand. The Committee, being of opinion that three at least of these laundries should be put in hand with the utmost possible dispatch, considered it imperative that additional temporary assistance should be afforded the engineer in order to enable him to hasten forward the work. They therefore recommended that the General Purposes Committee be instructed to appoint an additional assistant draughtsman in the engineer's department for a period of six months.

This was adopted.

PRESBYTERIAN CHURCH, BIRKENHEAD.—The new St. Paul's Presbyterian Church of England in North-road, Devonshire Park, Birkenhead, has cost 5,000*l.*, and provides seats for 600 worshippers. The new building is in the Gothic style, and has been built with Ruabon brick. Mr. James Merritt, of Birkenhead, was the builder, and Mr. R. G. Sykes, of Liverpool, the architect.

COMPETITIONS.

BOARD SCHOOLS, SALFORD.—An extraordinary meeting of the Salford School Board was held on the 8th inst., at the offices of the board, to consider a report upon the competition plans for the Tootal-road School. The Chairman moved, and Mr. Smith seconded, that the design submitted by Mr. H. E. Stelfox for the erection of the Tootal-road School be accepted, subject to such modifications as may be made by the General Purposes Committee; that Mr. Stelfox be appointed architect for the school upon the terms and conditions in the instructions to architects; and that the plans be forwarded to the Board of Education. The motion was adopted.

APPLICATIONS UNDER THE 1894 BUILDING ACT.

AT the meeting of the London County Council on Tuesday the following applications under the 1894 Building Act were considered. Those applications to which consent has been given are granted on certain conditions. Names of applicants are given in brackets. Buildings are new erections unless otherwise stated:—

Lines of Frontage.

Hackney, North.†—Houses on the eastern side of Upper Clapton-road, Hackney, to adjoin No. 152 (Mr. G. R. Woodruff).—Consent.

Hackney, Central.†—Two blocks of residential buildings on the west side of Clarence-road, Hackney (Mr. A. Bedborough for Mr. J. W. Woodall).—Consent.

Wandsworth (Detached).—The erection in advance of the general line of buildings in the street of portions of six blocks of dwellings for persons of the working class on the south side of Rosendale-road, Herne Hill (Messrs. Cubitt & Co. for the Peabody Trust).—Consent.

Lewisham.†—A greenhouse in the grounds of a house known as Cumnor, Laurie Park-avenue, Sydenham (Messrs. Rose & Sons for Mr. E. M. Stone).—Consent.

St. Pancras, West.—A one-story shop upon part of the forecourt of No. 88, Hampstead-road, St. Pancras (Mr. W. Eley).—Consent.

Hackney, South.†—A block of buildings, to be inhabited by persons of the working class, on the east side of London Fields, Hackney (Mr. J. Briggs for the Improvements Committee of the Council).—Consent.

Lewisham.†—Two dwelling-houses on the south side of South-vale, Blackheath, to abut upon Collins-street (Mr. W. Hallam for the Owners of the Collins Estate).—Consent.

Clapham.—Five dwelling-houses, with bay windows, on the east side of Queen's-road, Battersea, next No. 174 (Mr. J. S. Cooper for Mr. A. E. Balls).—Refused.

Hampstead.†—An iron and glass covered way in front of No. 12, St. John's Wood Park, Hampstead (Mr. A. Hackworth for Mr. H. Hart).—Refused.

Hackney, South.—One-story stable and cart-shed at the rear of No. 138, Chatsworth-road, Lower Clapton, to abut upon Elderfield-road (Mr. P. Gerber).—Refused.

Lewisham.—A one-story addition to No. 11, George-lane, Rushey Green, Lewisham, to abut upon Chestnut-road (Mr. C. Marks).—Refused.

Lewisham.—One-story shops on the forecourts of Nos. 162, 162A, and 164, High-street, Lewisham (Mr. F. A. Smith for Mr. A. Smith).—Refused.

St. Pancras, South.—A one-story shop on part of the forecourts of Nos. 77 and 79, Euston-road, St. Pancras (Messrs. E. J. Pain & Son for Mr. A. Hicks).—Refused.

Projections.

St. George, Hanover-square.—A conservatory on the balcony at the first-floor level in front of the Grosvenor Hotel, Buckingham Palace-road, St. George, Hanover-square (Messrs. A. Waterhouse & Son).—Consent.

Wandsworth.†—Wood and tile pents to fourteen houses on the south side and twelve houses on the north side of Clarendon-road, and to seven houses on the east side and seven houses on the west side of Rossdale-road, Putney (Mr. H. Bignold for Mr. Brooker).—Consent.

Fulham.—That permission be given to Mr. C. F. Barnard to retain an iron and glass sign over the saloon-bar entrance to the White Hart public-house, No. 563, Fulham-road, Fulham, extending beyond the general line of buildings in that street.—Agreed.

Hampstead.—Wood balusters on top of the projecting porches in front of a pair of semi-detached dwelling-houses on the north-east side of Finchley-road, Hampstead, near Platts-lane (Mr. E. Sibson for Mr. A. Davis).—Consent.

Lewisham.—Wood and tile pents at the entrances to Nos. 5A, 6A, 7A, 8A, 9A, and 10A, George-lane, High-street, Lewisham (Mr. E. Petters for Messrs. G. & C. C. Story).—Consent.

Poplar.—Iron and concrete balconies at the ground and first floor levels in front of the new

wards in course of erection at the Poplar Hospital, on the north side of East India Dock-road, Poplar (Mr. R. Plumbe for the Chairman and Governors of the Poplar Hospital).—Consent.

St. George, Hanover-square.—A bay window, portico, and balcony in front of No. 38, Hill-street, St. George, Hanover-square (Mr. W. Flockhart for Mr. E. G. Raphael).—Consent.

St. Pancras, South.—A projecting iron landing and ladder at the escape door from the flies of the stage at the Euston Theatre, Euston-road, St. Pancras, to abut upon Tonbridge-street (Messrs. Wylson & Long for The Euston, Limited).—Consent.

Strand.—That the consent of the Building Act Committee (acting on behalf of the Council) of August 30, 1900, to the erection of a turret at the 1st, 2nd, 3rd, 4th, and attic floor levels at the western angle of a building to be erected on the site of Nos. 111A and 112, Jermyn-street, St. James's, at the corner of Wells-street (Mr. R. Morphew for Mr. E. S. Morphew), be modified by the omission of the words "dedicated to and" from such consent.—Agreed.

Strand.—Two illuminated iron and glass signs at the Star and Garter public-house, No. 62, Poland-street, St. James's (Mr. H. M. Wakley).—Consent.

Walworth.—That permission be given to Messrs. G. Carter & Son to retain two signboards on the flat roof of a one-story shop in front of No. 9, Camberwell-road, Camberwell (Mr. G. A. Lansdown for Messrs. G. Carter & Son).—Agreed.

Wandsworth.—A wooden portico with balcony over at the entrance to a house in course of erection on the south side of Oakdale-road, Streatham (Mr. J. Mason for Mr. B. Masters).—Consent.

Westminster.—A wood, iron, and glass conservatory on the portico at the entrance to No. 43, Carlisle-mansions, Carlisle-place, Westminster (Messrs. J. Weeks & Co., Limited, for Mr. H. S. Saunders Clark).—Consent.

Islington, North.—Bay windows in front of ten houses on the south side of Heathville-road, Crouch Hill, Islington (Messrs. Wootton & Green).—Refused.

Strand.—An iron and glass shelter and illuminated sign at the entrance to the Tivoli Restaurant, No. 65, Strand; also the erection of gilt wooden letters at the second-floor level of the Tivoli Music Hall, Nos. 66 to 70, Strand (Messrs. Law & Allen for Mr. F. Kissell).—Refused.

Westminster.—Two oriel windows at the first and second floor levels of a proposed block of residential flats on the east side of Great Smith-street, Westminster, at the corner of Wood-street (Messrs. F. & E. Cooper).—Refused.

Width of Way.

Poplar.—That the request of the Guelph Patent Cask Company, Limited, for permission to retain a boundary-fence wall in front of a one-story office building on the south side of West Ferry-road, Millwall, such fence wall being within the prescribed distance from the centre of the street, be acceded to.—Agreed.

Woolwich.—Retention of a one-story addition at No. 1A, Elizabeth-terrace, High-street, Eltham, at less than the prescribed distance from the centre of the street (Mr. W. A. Narbeth).—Consent.

Chelsea.—That the application of Messrs. Beeston & Burmester for an extension of the periods within which the erection of a building on the site of No. 76, Queen's-road, Chelsea, to abut upon Paradise-walk, was required to be commenced and completed, be granted—Agreed.

Fulham.—A one-story shop upon the forecourt of No. 194, North End-road, Fulham (Mr. M. Laport).—Consent.

Lambeth, North.—A school building on the south side of Exton-street, Waterloo-road, Lambeth (Messrs. Beazley & Burrows for the Vicar and Churchwardens of the Joint Parishes of All Saints and St. John, Lambeth).—Consent.

Lewisham.—Retention of a boundary fence at the rear of Nos. 13 and 15, Houston-road, Lewisham, at less than the prescribed distance from the centre of a public footway leading from Woolstone-road to Perry Hill (Mr. H. L. Upham for Messrs. Graves & Shorter).—Consent.

Limehouse.—A building to be used as a bank' offices, &c., on the site of Nos. 660, 662, and 664 Commercial-road East, Limehouse, with a portion of the building and of the forecourt fence at less than the prescribed distance from the centre of Gill-street (Mr. R. C. Harrison for the London Joint Stock Bank, Limited).—Consent.

Westminster.—Rebuilding of No. 17, Chapter-street, Westminster, at less than the prescribed distance from the centre of that street (Mr. A. L. Guy for Mr. B. Mitchell).—Consent.

Lambeth, North.—Retention of a temporary wood and iron tool-house in St. John's Churchyard and recreation-ground, Waterloo-road, Lambeth, at less than the prescribed distance from the centre of Secker-street (Mr. H. C. J. Edwards for the Vestry of Lambeth).—Consent.

Haggerston.†—The erection of an addition to Nos. 50 to 62, Kingsland-road, Shoreditch, at less than the prescribed distance from the centre of Union-walk (Messrs. Ford, Son, & Burrows for Messrs. J. Carter & Sons, Limited).—Refused.

St. George, Hanover-square.—A one-story building on the north side of Hay-hill, St. George, Hanover-square, at less than the prescribed distance from the centre of South Bruton-mews (Mr. B. Slade for Mr. W. M. Pegge).—Refused.

Space at Rear.

Holborn.—A modification of the provisions of Section 41 of the Act with regard to open spaces about buildings, so far as relates to a domestic building with shop on the ground floor on the south side of Tavistock-place, St. Pancras, at the corner of Herbrand-street (formerly Little Coram-street), with an irregular space in the rear (Mr. G. D. Martin for Mr. E. G. Marshall).—Consent.

Battersea.—A modification of the provisions of Section 41 (i.) (vi.) of the Act with regard to open spaces about buildings, so far as relates to the proposed erection of two two-story cottages on the north side of Nine Elms-lane, Battersea, next the Heathwall pumping-station, with irregular spaces at the rear (Sir A. R. Binnie for the Council).—Consent.

Chelsea.—The retention of a conservatory on part of the open space at the rear of No. 28, Hans-crescent, Chelsea, at the corner of Basil-street (Messrs. Read & Macdonald for Mr. J. D. Denham).—Consent.

Lewisham.—Brewery buildings on the south side of Loampit-vale, Lewisham, at the corner of Algernon-road (Messrs. D. Young & Co. for Messrs. Thorne Brothers).—Consent.

St. George, Hanover-square.—An additional story at the rear of No. 48, Brook-street, St. George, Hanover-square, with a portion of such additional story upon the open space required by Section 41 of the said Act to be provided at the rear of the building (Mr. P. M. Horden for Dr. P. H. Pye-Smith).—Refused.

Deviation from Certified Plans.

St. Pancras, South.—Deviations from the plans certified by the District Surveyor, under Section 43 of the Act, so far as relates to the proposed rebuilding of Nos. 83 and 85, Marchmont-street, St. Pancras (Mr. W. C. Poole for Mr. T. Willis).—Consent.

Strand.—Certain deviations from the plans certified by the District Surveyor so far as relates to the proposed rebuilding of Nos. 19 and 20, Bateman-street, Soho (Mr. H. A. Woodington for Mr. B. H. Lynch).—Refused.

Lines of Frontage and Width of Way.

Hampstead.—A studio at Manor Lodge, Vale of Health, Hampstead (Mr. C. H. Saunders for Miss M. Carter).—Consent.

Chelsea.—The rebuilding of the Roebuck public-house, King's-road, Chelsea (Mr. R. Willock for Messrs. Courage & Co., Limited).—Consent.

St. George, Hanover-square.—The retention of a porch at the entrance to the Empress Club, No. 35, Dover-street, Piccadilly (Messrs. J. T. Wimperis & Arber for the Hotel and Club Investment Company, Limited).—Consent.

Brixton.—A one-story addition at the rear of the Swan public-house, No. 215, Clapham-road, in advance of the general line of buildings in Stockwell-road, and at less than the prescribed distance from the centre of Swan-mews (Mr. J. C. Jackson for Mr. R. Weller).—Refused.

Hackney, South.—A water-closet at the rear of No. 51, Mare-street, Hackney, to abut on Ash-grove (Mr. R. H. Hill for Dr. T. J. Barnardo).—Refused.

Width of Way and Construction of Building.

Poplar.—An iron shed in a yard on the south side of West Ferry-road, Isle of Dogs, and the retention of the existing boundary-wall at less than the prescribed distance from the centre of Deptford Ferry-road (the Guelph Patent Cask Company, Limited).—Consent.

Poplar.—Two wood and iron shelters in the recreation ground, East India Dock-road, Poplar, to abut upon Woodstock-road (Mr. O. E. Winter for the Board of Works for the Poplar District).—Consent.

Width of Way and Projections.

Marylebone, East.—An oriel turret at the north-west corner of a building on the south side of Bentinck-street, St. Marylebone, at the corner of Marylebone-lane (Mr. W. Woodward for Mr. T. H. Griffiths).—Consent.

St. George, Hanover-square.—Wood and glass inclosures to the sides of an iron and glass porch at the entrance to No. 6, Berkeley-street, Piccadilly (Mr. R. G. Hammond for Mr. Thomson).—Refused.

Line of Frontage and Space at Rear.

St. Pancras, West.—Six buildings on the north-east side of a proposed diversion of Mornington-road, and two buildings on the south side of Mornington-place (Mr. E. Mackie for the London and North-Western Railway Company).—Consent.

Formation of Streets.

Clapham.—A variation from the plan approved on April 17, 1894, for the formation of a new street to lead from Larkhall Rise to Wandsworth-road, Clapham, next the London, Chatham, and Dover Railway Company's station, so far as relates to an alteration in the levels of such street (Messrs. D. Young & Co.).—Consent.

Hackney, South.—The formation or laying out of four new streets for carriage traffic on the Glyn estate on the east side of Daubeney-road, Homerton, for Messrs. A. H. and A. E. Simpson. That the names Ashenden-road (in continuation), Meeson-street, Adley-street, and Trehurst-street be approved for the new streets.—Agreed.

Means of Escape from Top of High Buildings.

Holborn.—Means of escape in case of fire proposed to be provided, in pursuance of Section 63 of the London Building Act, 1894, on the fifth and sixth stories of Kingsley Hotel, Hart-street, Bloomsbury (Mr. C. F. Doll for Mr. J. Truelove).—Refused.

Conversion of Building.

Dulwich.—The conversion of a building, No. 14, Wren-road, Camberwell-green, used as a stable and coach-house, with living rooms over, into a caretaker's house (Mr. E. C. Beaumont for the London and South-Western Bank).—Consent.

Alteration to Building.

Dulwich.—The retention of a lumber room constructed in the roof of No. 23, Stradella-road, Herne Hill, without the walls of the building being thickened so as to make such walls comply with the first schedule of the said Act (Messrs. W. D. Church & Son for Mr. R. Lumsden).—Consent.

Artisans' Dwellings and Open Space about Buildings.

Holborn.—That the Council do make an order as follows:—Whereas Mr. J. Briggs, of Nos. 17 and 18, Pall Mall East, on August 15, 1900, under the provisions of Sections 41 and 42 of the London Building Act, 1894, delivered on behalf of the Housing of the Working Classes Committee of the Council, at the County Hall, plans of six blocks of intended dwelling-houses, to be inhabited by persons of the working class, and proposed to be erected, not abutting upon a street, on the site of Reid's Brewery, Clerkenwell-road, Holborn, such plans also showing one block of intended dwelling-houses, to be inhabited by persons of the working class, proposed to be erected on the north side of Portpool-lane, Holborn, with an irregular open space at the rear. . . . Now the Council does by this order sanction the said plans so far as Sections 41 and 42 of the said Act are concerned. . . .—Agreed.

Construction of a Cabmen's Shelter on Victoria Embankment.

City of London.—A cabmen's shelter on Victoria Embankment, near Blackfriars Bridge, City (the Rev. J. Waite for the Cabmen's Christian Association).—Consent.

The recommendations marked † are contrary to the views of the Local Authorities.

Correspondence.

To the Editor of THE BUILDER.

ILFORD FREE METHODIST CHURCH COMPETITION.

SIR,—In November, 1899, the Free Methodists of Ilford advertised in the professional papers for designs in competition for a new church, and on receiving particulars I found the conditions apparently fair—that only members of the R.I.B.A. or R.S.B.A. (*sic*) need compete, and that the contemplated outlay of 4,000*l.* was to include "umbrella stands." A professional assessor was promised, and three premiums for the best designs, the first premiated architect to carry out the work.

On December 15, 1899, I submitted drawings, and after waiting over a month wrote to the Secretary (Mr. J. Lamb) inquiring if anything had been settled. To this letter I received a reply that the plans were in the assessor's hands, and his report was expected in a week. Hearing nothing after a further interval of two months, I again wrote, and received no reply. Another five weeks having elapsed, once more I wrote and was informed that the matter would be definitely settled in a "few days." These "few days" having developed into another two months I again asked for information as to the award, and received the reply:—"Some time ago I returned your plans, and said the award had been made. I do not know that I can add anything to this." Not having received the plans or award, I threatened to put the matter into my solicitor's hands if the plans were not returned to me. This had the desired effect of obtaining the drawings, but still no mention of any award. On again writing to ask the names of the successful competitors I received the following courteous reply:—"I am thoroughly at a loss to know what you are driving at, as I have already informed you that, after very careful consideration of your plans, the architects who made the awards for us rejected yours." This was naturally interesting, as also the following:—"Several eminent architects competed and have accepted the decision of the Committee."

I have informed Mr. Lamb that I am "driving at" the decision of the Committee, as it appears to me a little difficult to accept a decision without

having the slightest idea what that decision may be. To this no reply has been vouchsafed.

I shall be glad to communicate with any architects who submitted designs in this unique competition.

R. STEPHEN AYLING.

The Student's Column.

LESSONS IN ELECTRICAL ENGINEERING.

13 (*Continued*). MEASURING LEAKAGE—THE EVERSHED OHM-METER—"EARTH LAMPS" METHOD—THE LOCALISATION OF FAULTS.

REVERTING to the diagram fig. 1 in our last issue in order to determine a, x, and y, the only instruments we need are an Evershed ohm-meter and generator (see fig. 2). The method of procedure is as follows:—1. Measure the resistance of A to E when B is put to earth, and suppose that this comes out X. In practice we work at the main fuse-block. We take out the fuses and connect one terminal of the ohm-meter to the end of A at the fuse-block, and connect B to a gas or water-pipe by means of a wire. On turning the handle of the generator the ohm-meter reads X directly in megohms. 2. Measure the resistance of the main B to E when A is put to earth (Y suppose). 3. Finally measure the resistance of A and B in parallel to earth (F suppose). Then we have—

$$\frac{1}{x}+\frac{1}{a}=\frac{1}{X} \quad \text{.....(1)}$$

$$\frac{1}{y}+\frac{1}{a}=\frac{1}{Y} \quad \text{.....(2)}$$

$$\frac{1}{x}+\frac{1}{y}=\frac{1}{F} \quad \text{.....(3)}$$

And by addition $\frac{1}{x}+\frac{1}{y}+\frac{1}{a}$

$$=\frac{1}{2}\left(\frac{1}{X}+\frac{1}{Y}+\frac{1}{F}\right) \quad \text{.....(4)}$$

Substituting for $\frac{1}{y}+\frac{1}{a}$ from (2) in (4) we find $\frac{1}{x}$ and similarly we easily find y and a.

Supposing we find that X is 2, Y is 2·4, and Z is 4 megohms, then

$$\frac{1}{x}+\frac{1}{a}=\frac{1}{2}$$

$$\frac{1}{y}+\frac{1}{a}=\frac{1}{2{\cdot}4}$$

$$\frac{1}{x}+\frac{1}{y}=\frac{1}{4}$$

Hence x is 6, y is 12, and a is 3 megohms, and the leakage currents and watts can be written down at once. The whole test is a very simple one and need only take five minutes; it ought, therefore, always to be made.

In practice what is usually done is to measure the resistance to earth (4 megohms in the above case) and the resistance between the mains (2·6 megohms). From these results we can, of course, tell very little. These tests are quite unscientific and ought to be given up. When worked out in the way we have done we see that the insulation resistance of the main B is twice as high as that of the main A, and hence, if we make B the high-pressure house main instead of A, we shall almost halve the waste of power that is taking place through leakage paths to earth, and hence both the consumer and the supply company will be benefited.

In the above test we have supposed that all the lamp switches have been turned off, and that all the lamps are in position. Hence, this does not help us to find the leakage that is taking place when all the lamps are in their sockets and the switches are turned on. In this case we have leakage across the flexible cords leading to the lamps, as these cords have now a difference of pressure of 200 volts between them. It is desirable, then, for the consumer's benefit that tests should be made of the probable leakage between the mains when all the lamps are on. To do this take all the lamps out of their sockets and turn on the switches; then take the same three measurements as before—as a rule we get different values of x, y, and a. If this test be also made, then the electrician can form a very fair idea of how the electrical part of the work has been done.

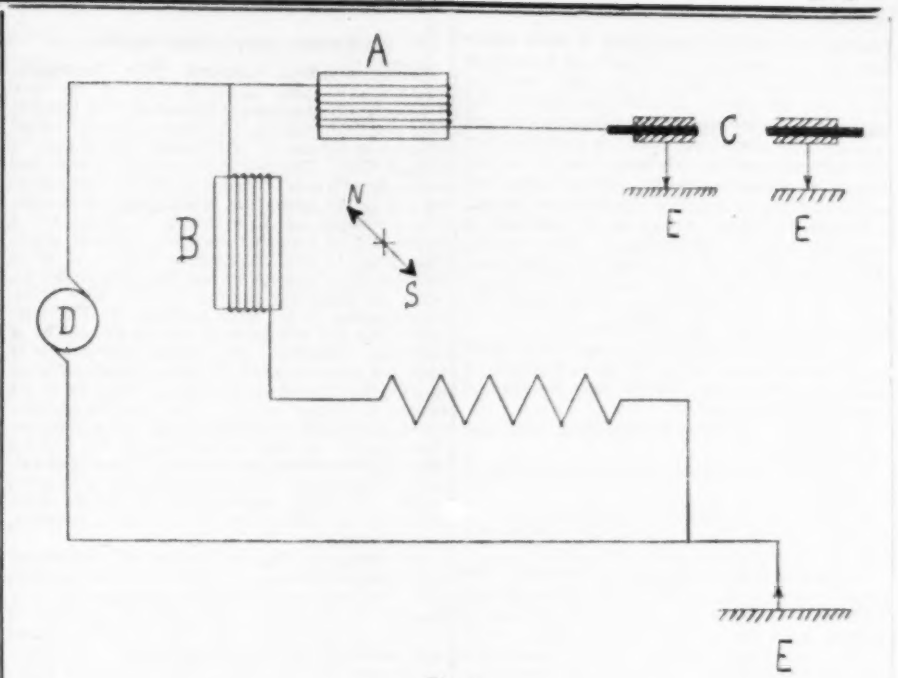


Fig. 2.

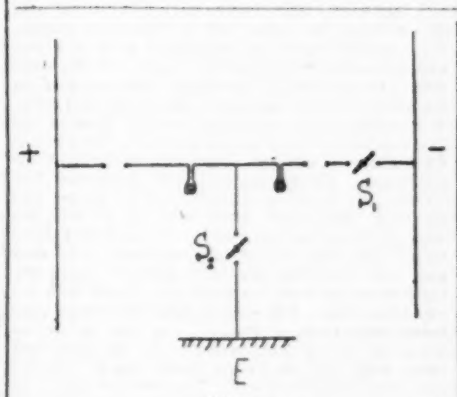


Fig. 3.

There is still a possible source of leakage that we have not yet considered, namely, that at the terminals of the glow lamp itself. These usually consist of two pieces of brass separated from one another and from the collar of the lamp by plaster of Paris. If they are not well made there may be considerable leakage taking place between the terminals, or even between the terminals and the collar, if the socket of the fitting be not insulated from earth. By buying lamps from well-known makers, however, the consumer can get lamps almost perfect in this respect. Leakage to earth through the collar of the lamp lowers the apparent fault resistance of a main, and by making the first test with the lamps in position, and then making another with them out, we can easily find out if the lamps are to blame.

The Institution of Electrical Engineers issued rules in July, 1897, for testing the wiring of a building. We take the following from the rule headed "Testing":—"The whole of the lamps or appliances for utilising energy having been connected to the conductors and all fuses being in their place, an E.M.F. equal to twice the E.M.F. which will be ordinarily used is to be applied, and the insulation resistance between the whole system and earth is to be measured after one minute's electrification. The insulation resistance should then be not less than ten megohms divided by the maximum number of amperes required for the lamps and other appliances." This rule is a very disappointing one. If we double the voltage (V) we need only double the insulation resistance (R). With voltage V the allowable leakage power for a given number of lamps is $\frac{V^2}{R}$ but with voltage 2V the allowable leakage power is $\frac{(2V)^2}{2R}$ *i.e.* $2\frac{V^2}{R}$. No distinction is made between a two-wire service at 110 volts and a five-wire service with 440 volts between the outers. No notice is taken of the insulation resistance between the mains.

From the revised rules of the Westminster Electric Supply Corporation we extract the following:—

"13. Testing.— . . . . The test is made from the Corporation's cut-out, and consists of an insulation test between the wires and between each wire and earth, when every branch fuse has been inserted, all switches turned on and the lamps removed.

Inspection.— . . . . If on such testing the officer discovers a leakage from the consumer's wires exceeding one ten-thousandth part of the maximum supply current to the premises, ... the Corporation shall forthwith discontinue the supply of energy due to the premises in question. . . . ." These are the most scientific rules we have yet come across in this country, but they are not quite explicit. The consumer ought to have the leakage between the mains tested when the lamps are in position and the switches open, as this is the ordinary state of the electric wiring in a house.

The Evershed ohmmeter mentioned above is a most useful instrument for measuring high resistances. It consists of a small hand dynamo D (in fig. 2) contained in a little box which will give a pressure of 200 volts when the handle is rotated about sixty times per minute, and another small box which contains two coils of wire A and B at right angles to one another and a small soft iron needle NS. The connections are as in the figure. If the handle of the dynamo be turned, a current will pass through the coil B, and if the insulation resistance of the cable C is infinite, then the needle will place itself along the axis of the coil, which is, of course, the direction of the resultant magnetic force, and the index will point to infinity on the scale of the instrument. Suppose, however, that the cable C is leaky, then some current will pass through A, and the needle will place itself in the direction of the resultant magnetic force due to the currents in the two coils, and the scale having previously been calibrated by means of known resistances, the index will point to the insulation resistance of the cable. The instrument does not easily get out of order, and can be trusted to within one or two per cent. By means of a two-way switch the resistance in series with B can be altered so that a double range can be given to the instrument.

A simple and efficient method of testing, called the "earth lamps" method, is sometimes adopted in private installations. Two 8-candle power lamps are connected in series (fig. 3) across the mains at the main switchboard, the middle point between them being connected to a water-pipe by means of the switch S_2. Now, if the switch S_1 be turned on, the lamps will burn with a dim red glow. If we now turn the switch S_2 on, then if one of the mains is faulty the lamp not connected to that main will burn more brightly than the other one. If both mains are faulty, both lamps will burn

brighter when S_2 is closed, and if both mains have high insulation, there will, of course, be no difference in the light of the lamps whether S_2 is open or closed. In this case, connecting one of the mains to earth through a thousand ohm coil, the lamp in connection with the other got very perceptibly brighter. As the whole arrangement need only cost five shillings, and as the test can be made without trouble in half a minute, it ought always to be adopted in extensive private installations. The wiring should be tested at least once a week, and faults should be promptly localised and remedied. This method is not applicable when the current is got from the public mains.

The localisation of faults is, as a rule, much more troublesome than the measurement of insulation resistance. Faults may be divided into three classes :—

1. Contact between a conductor and the earth (earths).
2. Contact between two conductors (short-circuits).
3. Want of continuity of the conductor.

In house wiring the second is the commonest fault, and the third is luckily very rare.

Suppose that the insulation resistance of the wiring to earth has been found to be exceedingly low and we wish to find out the faulty section, then the method of procedure is as follows :—We will take the case of a two-wire system with a main switchboard and subdivided mains going to distributing boards. We start at the main double pole fuse, and we will suppose that all the lamps are in their sockets and all switches closed. We test the insulation resistance first with the double pole switch closed, then with it open. If resistance now reads infinity we see that the fault is not on the main switch. If, on the other hand, the resistance still reads low, then probably slate with metallic veins in it has been used for the base of the switch, and contact with earth is made through the fixing screws. This could probably be remedied by bushing the fixing screws with ebonite. We now come to the mains leading to the switchboard. Turn off the switches on the switchboard one by one, testing the insulation after each ; if the fault still remain on, then it must be either on the mains or the switchboard itself. Disconnect the mains from the switchboard and test them ; if the fault is in them it must be located either by cutting them, or if the conduit system be used, by pulling them out altogether.

In order to test the switchboard for a fault we disconnect all the mains from it and connect all the metallic bars and switches on its surface by binding wire. We then test between this binding wire and earth. Bad slate and defective bushing of the screws, as in the main switch, might cause a fault. We then connect all the sub-mains together and test for faults. If the ohmmeter now reads very high, the fault might have been caused by one of the sub-mains actually touching the earth when fastened to the switchboard. If the fault be still on, then the particular sub-circuit can be found by testing them individually. Having located the sub-circuit in which the fault is, test the mains, then the distributing board, and finally the lamp circuits. It simplifies the test if all the point switches are tapped off the same main, and this ought always to be done. An earth is often caused by a switch screwed on to damp plaster or touching a gas-pipe. Ceiling roses, lampholders, and lamps are finally tested.

Testing for short circuits is very simple. We have simply to test each of the subsidiary circuits in turn. Then, having found the circuit in which the short is located, we examine the lamp, holder, ceiling rose, and flexible cord to find out where contact takes place between conductors of opposite polarity.

Actual inspection is the only satisfactory method of finding out how joints have been made. Most specifications insist that only resin is to be used as a flux. The use of soldering fluids containing hydrochloric acid, sal-ammoniac, or other corrosive substances ought never to be permitted. Some installations are wired with no joints at all except those through fuses on to the bus bars of the switch and distributing boards. Such an installation can be rapidly inspected, and will probably never give trouble. Jointed cables should never be hauled into metal pipes, and the joints should not occur in inaccessible or concealed portions of the wiring. Most of the trouble that arises from defective wiring is due to badly-made joints.

GENERAL BUILDING NEWS.

Congregational Church, New Tranmere, Birkenhead.—The memorial-stone of the new Tranmere Congregational Church in Old Chester-road was laid recently. The church is being erected on a site to the east of Old Chester-road, facing the Liberal Club. The buildings are well set back, and a considerable area of land is reserved in the rear to be used in the future for building schools thereon. The elevations are Late Gothic in design, and a tower will be arranged on the north-east angle. The fronts to Old Chester-road will be of white Storeton stone, relieved by red Tranmere sandstone, while the remaining portion is faced with brick. The windows to the main road will be filled with lead lights, and the internal woodwork will be of pitch-pine varnished. The church will consist of nave and transepts and end gallery, provision being made in the chancel for an organ. The floor of the church is slightly sloped. Two vestries are provided, one for the minister and one for the deacons. The contract is being carried out by Mr. Richard Allen, of Birkenhead, and the cost, including all furniture, but exclusive of land, is expected to be about 3,000*l*. The whole work is being carried out under the superintendence of Mr. T. W. Cubbon, architect, of Birkenhead.

St. Edward's Church, Barnsley, Yorkshire. —The foundation-stone of this church has just been laid. The architect of the new building is Mr. G. S. Packer, of Southport. The church consists of a nave 70 ft. long and 30 ft. wide, with north and south aisles, the total width being 46 ft. The height of the nave from the floor to the wall-plate is 34 ft., and to the ceiling 44 ft., and to the ridge 54 ft. The nave is divided from the aisles by granite columns into four bays. The roof is an open-timbered one. The walls on the inside will be finished in plaster. The chancel is 40 ft. in length and 20 ft. in width, and the height of the ceiling 34 ft. On the south side of the chancel is the organ chamber, and on the north side are vestries for the clergy and choir. A movable screen is intended so as to allow of the two vestries to be used as a parish-room. The chancel floor will be of marble. The accommodation is for 400 people. The seating will be of pitch-pine varnished, the bench ends being cut to shape and moulded. The choir seats will be of oak, the framing pierced and moulded. The nave is lighted on each side, by ten clearstory windows. The west and east windows are both five-light windows. Externally, the roof is covered with slates, with ornamental ridge. The walling is of Yorkshire parpoints, with stone dressings. The main entrances are at the west end of the church, on the north and south sides both doorways being deeply recessed with moulded arch-stones. The principal feature of the exterior will be the central tower, which rises over the chancel and is 25 ft. square; the height to the spring of the tower roof is 72 ft. from the ground, the height of the roof is 22 ft. Provision has been made for heating the church with hot water by the lower-pressure system.

Baptist Chapel and Schools, Leicester.—The foundation-stones of the Robert Hall Memorial Chapel, Leicester, were laid on the 4th inst. The main entrance to the chapel and the two gallery entrances will be approached from the Narborough-road. Two other entrances at the north-west end will afford access to the other end of the chapel and galleries. The chapel is 48 ft. by 64 ft., with a transept on either side. The rostrums are placed at the north-west end of the building, and part of the lower one will be movable to give access off the chapel floor to the baptistry, which is sunk below. An exit from the latter leads into a wide corridor running the full width of the edifice. The organ and choir stalls will be placed at the rear of the rostrums and separated from the chapel proper by an elliptical chancel arch. The chapel will have seating accommodation, in pitch-pine, for 850 persons. A deacons' vestry will adjoin that for the minister at the north-west end of the buildings, and the two rooms will be convertible into a church parlour. A choir vestry is planned at the gallery level, and under it, on the ground floor, a similar vestry. Lavatory accommodation is provided at this end. The floor of the chapel will slope towards the rostrums, and be formed in solid wood blocks laid on cement and concrete. Above a wood dado the walls will be faced of red sand bricks, and a "closed" roof will span the whole width of the building. The schools, immediately adjoining the chapel, will contain a lecture hall, 35 ft. by 51 ft., with two classrooms at the north-west end, on the ground floor, each 14 ft. by 14 ft. 6 in., and capable of being added to the lecture hall as desired. An open timber roof will cover the lecture-hall, at each end of which there will be a gallery, designed to give accommodation for seven classes, divided by screens. A large classroom, which can also be divided, is arranged on the first-floor level, over the two classrooms already named, and on the same floor will be two other classrooms. The school will have two main entrances from Narborough-road, and an entrance from Upperton-road, the latter adjoining the kitchen—close to the lecture hall. At the south-east end of the latter an infants' classroom, 16 ft. by 28 ft., will be situated, with separate entrances from the corridor. The whole accommodation for the school will provide for 800 scholars. The heating of the buildings will be carried out on the low-pressure hot-water system, from a chamber in the basement. Electric lighting is contemplated. The building has been designed in the Early Tudor period, with external elevations in red sand bricks, with Costessey dressings. Mr. Walter Brand is the architect, and Messrs. J. E. Johnson & Son are the builders, both of Leicester.

Methodist Chapel, Middlesmoor, Yorkshire.—A Methodist chapel was opened at Middlesmoor on the 21st ult. The architects were Messrs. Bland & Bown, of Harrogate.

Church, Driffield.—On the 8th inst., the Archbishop of York visited Driffield, and consecrated the Church of St. John, which has been in course of erection for over two years. The church is from plans prepared by Messrs. Hicks & Charlwood, of Newcastle-on-Tyne. It is built of Lincolnshire pressed bricks, and has been erected at a cost of over 4,000*l*., the work being carried out by Messrs. W. Season & Son, of Driffield, whilst the oak stalls and carved oak pulpit and lectern have been executed by Messrs. Shepherdson, Limited, Driffield.

School, Newmarket.—The Bishop of Ely recently opened a new infant school, which has been erected adjoining All Saints' National Schools, Newmarket. The school has been built of red brick. Besides a large main schoolroom, there are three classrooms. The walls are match-boarded with pitch pine, and the floors are of wood blocks. Messrs. Holland & Son are the architects, and Mr. Cowell, of Soham, the builder. The total cost of the building and furnishing will be about 1,550*l*.

School, Bramley, Leeds. — The new school erected in Broad-lane, Bramley, by the Leeds School Board has cost 10,016*l*., inclusive of the site (2,665 square yards) and the fittings. It has been built according to plans prepared by Mr. W. S. Braithwaite, architect to the Board, and is a two-storied building, with accommodation for 650 children. The infants' department is on the ground floor, and consists of a central hall and four classrooms. Three of the rooms accommodate sixty each, and there is a babies' room. The mixed department, on the upper floor, has a central hall and six classrooms, each accommodating sixty children. The staircases are fireproof, and there are ample cloakrooms, teachers' rooms, &c., whilst at the rear of the building a workshop has been erected wherein at each lesson twenty-four boys may be given manual training. The heating is effected on the low-pressure hot-water system. There are large playgrounds. The various contractors were : — Messrs. Appleyard Brothers, masons, &c. ; Messrs. Trickett & Sons, joiners ; Messrs. Sowry & Martin, plumbers ; Mr. S. McFarlane, concreter ; Mr. A. Marsden, plasterer ; Messrs. Taylor & Parsons, ironwork ; Messrs. Pickles Bros., slating ; Mr. J. A. Naylor, painting ; Messrs. Illingworth, Ingham, & Co., furnishing.

School, Armley Park, Leeds.—The new school erected in Stanningley-road, near Armley Park, by the Leeds School Board, occupies 5,052 yards of ground, and has been built to accommodate 1,180 children. On the ground floor, which is set apart for the education of infants, there is a room for 410 children, and in the mixed department, on the first floor, which comprises a large central hall and twelve classrooms, there is accommodation for 780 scholars. The ground floor comprises a large hall and six classrooms, two of which are to be set apart for the care of babies. Large playgrounds adjoin the buildings. Inclusive of site and fittings, the school has cost 19,400*l*. It has been erected from plans by Mr. W. S. Braithwaite, architect to the Board.

Little Portland-street Chapel.—The repairs and improvements of this chapel, recently reopened, have been carried out for the greater part by Messrs. Shoolbred & Co. under the direction and supervision of Mr. Edward Martineau. The chapel was built in 1833 for a Unitarian congregation which Mr. Agar had established in a proprietary chapel in York-street, St. James's, and which, since the recent migration of the Essex-street, Strand, Chapel (founded in 1774 by Theophilus Lindsey and Joseph Priestley) to Kensington, is, we understand, the only remaining congregation of Unitarian Christians in Central London. The interior and exterior of the fabric have been redecorated, the roof repaired, electrical lighting installed, and new seating substituted for the old pews, at a cost of about 1,000*l*.

Croydon and Wimbledon Joint Small-Pox Hospital. — At North Cheam, Surrey, on the 1st inst., the foundation-stone of the new small-pox hospital was laid by Alderman C. C. Morland, J.P., Chairman of the Board. The buildings will comprise an entrance-lodge, administrative block with accommodation for doctor, matron, nine nurses, and eight servants, three ward blocks with accommodation for forty-eight patients, mortuary, stables, staff, and patients' laundry, disinfecting block, and discharging block. The architects are Messrs. Chart, Son, & Reading, of Croydon ; and the contractors are Messrs. D. Stewart & Sons, of Wallington, the amount of their contract being 23,448*l*.

Great Central Hall, Bermondsey New-road.—This building, in connexion with the South London Wesleyan Mission, was formally opened on the 26th ult. The great hall will seat 2,000

persons; it is octagonal in shape, and 92 ft. in diameter; entrances being obtained at each angle afford ample means of exit. The platform is placed forward, so that no person in the audience is over 60 ft. distant from the speaker. The seating is on the lift-up principle, one for each person. The heating is on the Musgrave Fan System of heating and ventilation combined, fresh cool air (or heated) being driven through tubes to the various parts of the building. The hall is lighted throughout with electricity by Messrs. Waring & Withers, of London. In the basement there is a hall capable of accommodating 600 persons, also classrooms, offices, and clubrooms, kitchen, &c. The total outlay has been about 30,000*l.*, and the contractor was Mr. W. Shepherd, of London. The architects were Messrs. C. Bell, Withers, & Meredith, of London.

BATHS, WANDSWORTH.—The Lord Mayor (Sir Alfred James Newton), accompanied by the Lady Mayoress, visited Wandsworth on the 6th inst. for the purpose of laying the foundation-stone of the public baths to be erected by the Wandsworth Vestry. The baths will occupy a position facing High-street, and very near the Town Hall. The cost of the building will be 29,291*l.*, 3,800*l.* being paid for the freehold. The baths will have a frontage of 72 ft., and a depth of 207 ft., the style being English Renaissance. The number of men's first-class private baths will be six, and thirty second; women, four first, eight second. The first-class bath will be 100 ft. long by 30 ft. wide. There will be sixty dressing boxes, made of teak, and so fitted that, when needful, they can be folded back against the wall. The second-class bath is 85 ft. long by 30 ft. wide, and contains seventy-two dressing boxes. Both baths are lined throughout with white glazed bricks; the gangways are to be paved with ornamental tiling or granolithic pavement. The roof of the building will be covered with Broseley tiles. Mr. Walter Wallis, of Balham, is carrying out the work, under the supervision of the architects, Messrs. Spalding & Spalding, of Queen-street, E.C. The clerk of the works is Mr. Alfred Davies.

CONGREGATIONAL HALL, WOKING.—Foundation-stones were laid on the 8th inst. of a Congregational hall in the York-road, Woking. The scheme includes a church, but at present only the lecture-hall and a kitchen are being erected. The architect is Mr. W. Howard Seth-Smith, and Messrs. Harris & Sons, of Woking, are the builders.

THE CONDITION OF THE SHEFFIELD BUILDING TRADES.—The building trade in Sheffield continues to slacken, and the boom which prevailed up to a couple of months ago has now quite disappeared. Although there has been no such utter collapse here as is reported from London and other large centres of population, the failures of speculative builders have occasioned heavy financial losses to firms who supply timber, stone, slates, bricks, hardware, and other requisites of the trade. The check to building operations has not been brought about because the demand for houses is satisfied, but solely because, on account of the dearness of all kinds of materials, houses do not now provide a profitable investment for capital. Cottage houses are still scarce. Instead of keeping lists of vacant dwellings, the agents have on hand lists of applicants who are waiting patiently for a vacancy. The decline in trade has appreciably relieved the scarcity of labour, which had become so acute as to cause serious inconvenience and loss. Never before have the men engaged in building operations earned so much money as during the past spring and summer. Employment being constant and overtime abundant, even labourers could easily earn more than a skilful cutler. Complaints were rife, however, that this unusual prosperity demoralised many of the men, and induced habits of unpunctuality and neglect, which delayed the completion of jobs, and rendered the employer liable for penalties.—*Sheffield Telegraph.*

ISOLATION HOSPITAL, LEICESTER.—The isolation hospital which has been built on the Gilroes estate, Leicester, was opened on the 28th ult. A good deal of work remains to be done before the buildings leave the contractors' hands. In the competition for designs for the buildings, the first place was awarded to Messrs. Blackwell & Thomson, and the work has been carried out under the personal supervision of Mr. Thomson. The following description of the buildings is taken from the *Leicester Post*:—The site comprises about fourteen acres of the Gilroes estate, and adjoins the Groby-road. The administration block, a two-story building, faces the road at a short distance from the entrance. The hospital proper consists of four separate one-story pavilions for the treatment of scarlet fever, giving accommodation for twenty-six beds each; a similar pavilion for typhoid fever containing twenty-eight beds; two isolation pavilions—one a two-story building — containing twenty-eight beds, making accommodation for 160 adult patients. The buildings on the site have been so arranged that two additional scarlet fever pavilions can be added, and one additional isolation pavilion. The other buildings comprise the administration block, discharging block, mortuary, engine and boiler house, laundry, and porter's lodge. The total number of beds, if the full extension were carried out, would be 240. The several buildings are connected by macadam roads. Owing to the natural fall of the ground, north to south, terracing has been adopted to some extent, the earth removed from the higher parts being used to fill up the lower portions as terraces. The four scarlet fever pavilions are arranged alike, and consist of two main wards, 72 ft. long, and 26 ft. wide, to contain twelve beds each. In the central portion is provided a separation or observation ward of two beds leading out of the ward corridor, and having its own lavatory and water-closet. The nurses' kitchen is centrally placed, and can overlook the beds in the two main wards by means of observation windows. The ward linen storeroom is approached from the nurses' kitchen, and the coal-store for the wards is placed outside, near the entrance to the pavilions. At the distal end of each main ward is placed on one side the sanitary tower, containing the water-closets, slop and scalding sinks, disconnected by a ventilated lobby, and on the other side the bathroom, which contains two baths of porcelain and two lavatories. In connexion with the waste water from the bathroom a contrivance has been adopted for cleansing the drains, namely, an automatic flushing tank situated at the upper end of each pavilion. The typhoid pavilion is on similar plan to the scarlet fever pavilions with this exception—as the block will be used for two sexes it is necessary to provide two separation wards instead of one, as in the scarlet fever blocks. The one-story isolation block is based on the lines of the Local Government Board's suggestion, and provides for a total of twelve beds. The two-story pavilion is arranged on two floors, one half to face east, the other half west. On both floors in each half two two-bed wards are provided, leading on to the verandah, with nurses' kitchen and larder. The sanitary towers are approached from the verandahs. The first floor in each half is approached by an open stone staircase at the extreme end of the verandahs. The floors of the wards are of teak, laid in narrow blocks, herring-bone fashion. The administrative block contains on the right of the front main entrance committee-room, doctor's sitting-room, lavatory, &c., dispensary, laboratory store, waiting-room and telephone enclosure; and on the left of the entrance, matron's sitting-room, office, nurses' messroom, sitting-room, sewing-room, household linen-room, dry goods store, lavatory, &c., servants' hall. The servants' hall and nurses' messroom are placed in close proximity to the kitchen. The main corridor is 7 ft wide. At the west end of the administrative block, and leading at right angles from the main corridor, is another corridor, out of which lead the kitchen and stores, &c. The floors of the corridors, kitchens, &c., are of terrazzo. The first floor contains the nurses' and matrons' bedrooms, with bathrooms, water-closets, and linen store. The doctor's bedroom and bathroom is also on this floor, and is approached by a separate staircase. Twenty bedrooms for nurses are provided on this floor. The second floor contains ten bedrooms for servants, a bathroom, &c. The porter's lodge is situated on the right-hand side of the main entrance from Groby-road, and stands 15 ft. back. At the rear of the porter's lodge on the right-hand side of the entrance roadway is the discharging block, which is arranged in duplicate for male and female patients. The mortuary consists of a post-mortem-room, mortuary, and viewing chamber. The heating throughout the hospital is by low-pressure steam, with auxiliary heating arrangements of stoves and grates. In the wards are fixed ventilating radiators under some of the windows. Extraction flues are built in the outside walls for carrying away the vitiated air of the wards. The separation wards, bathrooms, corridors, &c., are warmed by radiators and coils. A separate apparatus is provided in each block to supply the necessary hot water for baths, lavatories, sinks, &c. The foul drains from the scarlet fever pavilions, typhoid pavilion, isolation block, and administrative block are each kept distinct and disconnected at a manhole before entering the sewage tank adjoining the ejector house. The sewage is then pumped up into one of the main carriers on the sewage farm by means of a Shones' ejector apparatus. The facings to all the buildings are Ellistown brick, with stone dressings, and the roofs are covered with green slates. Between all the buildings there will be telephonic communication. The hospital is lighted throughout by electricity, supplied by a dynamo and accumulators. The dynamo is driven by steam. The building contract has been carried out by Mr. J. F. Johnson, of Leicester, and Mr. F. W. Haskard, of the same place, executed the plumbing work.

BAPTIST CHURCH, NEWCASTLE-ON-TYNE.—Building operations have been commenced in the erection of this church. The estimated cost is 4,383*l.* Mr. A. Bruce, of Newcastle, is the building contractor, and the architects are Messrs. George Baines and Reginald Palmer Baines, of Clement's-inn, Strand, London.

STATUE TO ADMIRAL BLAKE.—The unveiling by Lord Brassey of the statue of Admiral Blake, subscribed for at a cost of about 1,200*l.*, took place on the 4th inst. on Cornhill, Bridgwater, Blake's birthplace. The bronze statue was executed by Mr. F. W. Pomeroy, sculptor, of Chelsea, and there are appropriate panels in high relief. One of these represents the taking of Santa Cruz, and another depicts the bringing home of Blake's body into Plymouth Sound.

FOREIGN.

STRAITS SETTLEMENTS.—*Penang.*—The Municipal Commissioners of Georgetown, Penang, recently decided that more office accommodation was necessary, and secured an excellent site for a Town Hall, having frontages to the Esplanade and the sea and of sufficient area to allow the building to stand quite detached. The Municipal Engineer was then instructed to prepare a design, and this he has done, and the contract for the new building was recently let to a local Chinese contractor, the price being about 75,000 dols. The building now being erected is a long narrow block having slight projections at each end. The rooms for the most part are of the full depth of the building. A spacious verandah extends nearly all round it. The building is to be of brickwork stuccoed, some of the columns being in grey granite. The roof is to be covered with slates on steel trusses, and we understand a considerable amount of steel will be used in the construction of the building, which will hardly be an architectural success.——The Eastern Extension Australasia and China Telegraph Company are about to carry out extensive alterations to their premises, and plans have already been prepared by Messrs. Swan & Andover, of Singapore.——The latter firm, in conjunction with Mr. James Stark, of Penang, prepared designs for a new Presbyterian Church in Penang, and the building has just been commenced. In plan it consists of a hall about 70 ft. by 35 ft., with verandahs at sides, and projecting vestries at the pulpit end, and at the opposite end an entrance porch with projecting bays on each side, that on the right hand being continued up as a tower. The style is late English Renaissance, the materials used being red brick with buff-coloured stucco dressings. It is proposed to pave the building with white marble tiles with a black and white border.——The harbour improvements are going on slowly.——The Hill Railway has made no progress yet beyond the initial stage.——The building trade in Penang is flourishing at present, probably owing to a year or two of general success in the trade of the colony.——A competition was recently held for designs for a new Grand Stand for the racecourse, but so far nothing has been heard as to the result.

Singapore.—The new Teutonic Club recently erected by the German community is practically completed, and will very shortly be opened. The building, which was described in a previous number, is admitted by all to be a great success.——The Municipal Commissioners recently purchased the Hotel de l'Europe for 300,000 dols., and have occupied the building as new offices. The site is a fine one, facing the sea, with the Esplanade between it and the sea. The building, although not at all suitable for the purpose, is being used as offices, but it is probable that at no distant date new offices will be erected, and it is rumoured that as the site is larger than would be required for the new building, part of it will be reserved for a theatre.——The offices of the Eastern Extension Australasia and China Telegraph Company have recently been considerably enlarged, the architects being Messrs. Swan & Andover.——There is very considerable activity in the building trades in Singapore, but very few buildings of any interest are being erected, the buildings for the most part being shops, warehouses, and private houses.——Sketch plans for a Natural History Museum, to cost about 400,000 dols., have recently been prepared by the Colonial Engineer and sent home to the Secretary of State for his approval. There exists considerable doubt locally as to whether Mr. Chamberlain will sanction the expenditure.——The railway to Johore was started as regards construction last April, and so far a few cubic yards of earthwork has been done. The acquisition of land has been a stumbling-block, and the estimated amount to be paid as compensation to owners of land is likely to be exceeded by several hundred per cent.

Johore.—It is now practically decided that the railway from Nezri Sembilan is to be continued south, through the state of Johore to Johore Bahru, and connected with the Singapore-Johore Railway by ferry. This would then connect Penang with Singapore.——The Sultan of Johore is commencing a large hotel in Johore to take the place of the Rest-House which he has had working for some years past. As far as the present requirements of the place, the new building will be much too large; but the Singapore-Johore Railway and the railway from the north, when completed, must bring a considerable number of people to the place. The building will have a frontage to the sea of upwards of 400 ft., and a return frontage to the Esplanade and a side road. The building is two-storied, except the central block, which will be three, and consists, on the ground floor, of a large dining-hall with private dining-rooms, billiard-room for four tables, large bar and lounge, verandahs and lavatories, and usual offices, and a number of bedrooms. Upstairs there are four blocks of bedrooms, each bedroom having its own bathroom and each block a sitting-room and reading-room. The rooms are lofty, large, and well ventilated, and every convenience is provided. The architects are Messrs. Swan & Andover, who have adopted French Renaissance for the treatment of the building.

MISCELLANEOUS.

Professional and Business Announcements.—Messrs. H. J. Skelton & Co., iron and steel contractors, have removed their offices from 12 Lime-street to 71 Finsbury-pavement, E.C. Their new telephone number is "1692 London-wall."

Electric Lighting, Dudley, Worcestershire.—On the 5th inst. Mr. H. Percy Boulnois held an inquiry at Dudley into an application by the Town Council to borrow 10,000*l.* for the free wiring of houses and premises for electric lighting.—Mr. R. P. Wilson (consulting engineer) stated that the Corporation intended to charge 6d. per unit for two hours and 1½d. for the remaining twenty-two.

Drinking Fountain, Stoke Edith, Herefordshire.—A drinking fountain, in memory of Lady Emily Foley, has been erected near the juncture of the cross roads at Stoke Edith. The fountain is of blue Forest of Dean stone, and has troughs for horses and smaller animals. The work was executed by Mr. A. W. Ursell, sculptor, Ross.

Reredos, Severn Stoke Church, Worcestershire.—A reredos of carved oak has been placed near the east window of this church. The work was carried out by Messrs. Boulton & Son, of Cheltenham.

Wembley Hill Land.—A sale of land in this suburb was held by Mr. Walter Hall, at the Willesden Junction Hotel, on Monday last, when eighty-three plots of freehold land were submitted to public auction. Shop plots facing Wembley Hill evoked spirited competition and were all sold at good prices. Villa plots fronting Mostyn-avenue found ready buyers at prices varying from 50*l.* to 60*l.* each, those situated at and near the top of the hill (whence the best views are obtained) being especially competed for. The total amount realised was about 4,700*l.*

East Riding Antiquarian Society.—On the 2nd inst. the members of this society drove to Hemingbrough. Arriving at the parish church the varied features of its architecture were pointed out by Mr. Boyle. After an interesting stay in the village the party proceeded to Wressle, whose castle and the history connected with the structure received attention from Mr. Bilson, who exhibited a ground plan of the original building, which was erected in 1345 by Sir Thomas Percy, brother of the first Earl of Northumberland. It was a very strong house, of quadrangle shape, practically of one date. At the castle there were five towers, one at each corner, and probably a gateway tower in the centre of the east front. In the civil war the castle was garrisoned for the Parliamentary forces, and in 1650 the order for its demolition was signed by Philip Saltmarshe, whose descendants now reside near Howden. The building, however, could not be considered a castle pure and simple, because the domestic idea was coming in much more strongly. It was probably erected at a time when Percy was in favour with Richard II. The visitors then journeyed to Bubwith Church. Mr. Bilson explained the details, and said the church had been very carefully handled, and, as far as he could judge, nothing of interest had been destroyed. The additions of the aisles took place later in the twelfth century—thirty or forty years after the church was built. The rebuilding of the nave may be dated early in the fourteenth century. Reference was made to an interesting fact that Nicholas of Bubwith was Bishop of Bath and Wells in 1424, and prior to his death bequeathed in all 266*l.* to be spent on the erection of a western tower, to the improvement of the bells, to heightening the walls, and for the insertion of three windows.

School Board Contracts and Wages.—A return just issued by the Board of Education shows in respect of each School Board district in England and Wales, whether the contracts entered into by the School Board for the execution of works specify any conditions as to the wages to be paid by the contractor, or other conditions with regard to persons employed by him, and, if so, what those conditions are. In eleven English counties—those of Bedford, Berks, Buckingham, Cambridge, Chester, Cornwall, Hereford, Huntingdon, Oxford, Rutland, and Westmoreland—no such conditions appear to be specified by any School Board; and in each of eight other counties only one Board imposes any such terms in its contracts, namely, Cumberland (Carlisle), Dorset (Kinson), Hertford (Watford), Lincoln (Grimsby), Salop (Shrewsbury), Wilts (Swindon), Monmouth (Newport), and Norfolk (Norwich). In the county of London also there is, of course, only one school board, but the wages clause of its contracts applies to the whole county. The numbers of boards in other counties imposing conditions in regard to labour are as follows:—In Hants, Leicester, and Suffolk, two each; in Gloucester, Somerset, Surrey, Sussex, and Worcester, three each; in Devon and Northamoton, four each; in Warwick, five; in Derby and Kent, seven each; in Durham, eight; in Middlesex, nine; in Essex, ten; in Northumberland, thirteen; in Stafford, fifteen; in Lancaster, eighteen; and in Yorkshire, twenty-five. In Wales ten boards insert clauses relating to labour in their contracts, but in only three instances do these affect the question of wages. The conditions imposed by the 155 English boards enumerated as having taken action in the matter vary, but in the majority of cases it is stipulated that contractors shall pay the "recognised" or "standard" rates of wages current in the district in which the works are to be performed, and in some instances a schedule of the rates of pay is inserted in the contract, while in others it is specified that they shall be the rates agreed upon between associations of masters and trade unions. In several cases a clause is inserted prohibiting the sub-letting of contracts or portions thereof, but in some localities this is modified by permitting sub-letting with the sanction of the school board for which the work is to be done. The Birmingham School Board, in addition to requiring its contractors to pay not less than the minimum standard rate of wages of the distrfct, and not to sub-let any work of the Board to persons not paying at least the minimum rate of wages, provides that the contractor, if a member of the Birmingham Master Builders' Association, shall undertake to submit to that associafion any dispute between himself and his workmen liable to lead to an interruption of the work in hand, with a view to an application being to the Board of Trade to take action under the Conciliation Act, 1896, for the settlement of such dispute, and that if not a member of the association, he shall, on the request of the School Board, undertake to apply to the Board of Trade on his own account. The Devonport Board stipulates that its contractors shall keep it indemnified against all claims which may be made by workmen under the Employers' Liability Act and the Workmen's Compensation Act. Several Boards require contractors to assent to the architect supervising the execution of the contracts having power to discharge any of the contractor's servants who may be incompetent or guilty of misconduct. The Walthamstow Board expresaly extends the fair wages clause beyond the scope of contracts for building construction and repairs, and inserts it in contracts for the supply of raw material and manufactured articles.—*Birmingham Post.*

Proposed Restoration of St. Sidwell's Church, Exeter.—On the 9th inst. a meeting was held in the vestry of St. Sidwell's Church, Exeter, for the purpose of receiving plans from the feoffees of the proposed renovation and restoration of the church tower. Mr. R. J. Mills, a churchwarden, proposed that the plans by Mr. Harbottle be approved, and that application be made to the Chancellor for a faculty. This was seconded by Mr. Harry Hems and carried.

New Building By-laws for Scarborough.—At a meeting of the Scarborough Town Council on the 8th inst. it was decided to adopt a new set of building by-laws as approved by the Local Government Board. The main changes are the substitution of the stock timber sizes used at Hull and Grimsby for the special sizes in force, leave to build cycle houses of wood within 10 ft of dwellings, modification as to beds of concrete where the foundations are of solid bed clay, and allowing the air space in semi-detached villas to be divided between the side and rear of the premises.—*Yorkshire Post.*

Building Trades' Gift to the Nation: Birmingham Fund.—The fund which was opened about four months ago in Birmingham in aid of the Building Trades' Gift to the Nation has now been closed. The total amount subscribed was 525*l.*, which is considerably more than has been contributed in any other provincial city or town. At the final meeting on Monday, over which Mr. F. G. Whittall (President of the Birmingham Master Builders' Association) presided, it was stated that the operatives had contributed nearly 200*l.* towards the sum realised. The homes, the Chairman stated, were primarily intended for those disabled soldiers who had been formerly connected with the building trade, and would stand as a permanent memorial of the patriotism of those engaged in the building industry.

Memorial Window, Chapel of Blundell's School, Tiverton.—A window has been placed in the chapel of Blundell's School, Tiverton, in memory of the soldiers and sailors in the war who had been to this school. The window is on the south side of the chapel and was made by Messrs. F. Drake & Sons, of Exeter.

Memorial Window, St. Augustine's Church, Victoria Park.—A stained-glass east window has been placed in this church in memory of the Rev. E. W. J. Bankes, the late vicar. The window was the work of Messrs. Burlison & Grylls.

LEGAL.

EMPLOYERS' LIABILITY ACT.

"VOLENTI NON FIT INJURIA."

Some points of considerable importance to builders were raised in a case which came before Judge Stonor and a jury on Friday the 5th inst., at Brompton County Court. The plaintiff, a builder's labourer, named Lewry, Walsall-street, Battersea, London, S.W., sought to recover 208*l.*, under the Employers' Liability Act, from his late employers, Messrs. Jones & Betts, builders and decorators, 37, Chester-terrace, Belgravia, S.W., the claim being in respect of personal injuries, said to have been caused through negligence on the part of the defendants or their foreman. The case first came before the Court a fortnight previously, but the jury could not agree, and had to be discharged without giving a verdict.

Mr. J. W. Moyses was counsel for the plaintiff, and Mr. E. F. Leaver, counsel, defended.

The plaintiff's case, briefly, was stated as follows:—On June 1 last he was assisting in some whitewashing at a job which the defendants had at 11, South Eaton-place, S.W. In order to reach the work it was necessary to mount a ladder some ten or twelve feet. Two other men were below, one of them standing on the foot of the ladder to prevent it slipping. Late in the afternoon Bowerman, the foreman of the job, came and took the two men away. The plaintiff—according to his own version—asked that one of the men might be allowed to remain, as he thought it would not be safe to work on the ladder without someone at the bottom. The foreman, however, expressed a belief that Lewry could manage very well, even if the work were half as high again, and left him to finish it alone. Shortly afterwards the ladder slipped, and plaintiff fell to the ground, breaking five of his ribs. He had done no work since, and would never be able to do laborious work again.

In cross-examination, the plaintiff admitted that, when talking to the foreman about not taking the men away, he thought that the ladder would slip, as it afterwards did slip.

Counsel for the defence submitted that, after the plaintiff's last admission, there should be a nonsuit. He relied, he said, upon the general principle of law that a workman who knows and fully appreciates the risk that he may be running, has no cause of action.

Counsel for the plaintiff quoted the cases of Yarman *v.* France, and Smith *v.* Baker, which, he contended, were opposed to his friend's submission.

The Judge pointed out that Section 1 of the Employers' Liability Act referred to a general liability, and gave an employee similar rights to those possessed by a person not in the service of the master.

Counsel for the defendants then submitted that there should be a nonsuit, according to the doctrine *Volenti non fit injuria.* ("No injury is done to a consenting party").

Counsel for the plaintiff admitted that if the man had known of the danger, and said nothing to the foreman about it, he might not have been able to recover; but in the present case the plaintiff gave due notice that he believed it to be unsafe to work upon the ladder without some one to hold it.

The Judge intimated that he did not see sufficient grounds for a nonsuit, and the case would have to go on.

Mr. Christopher R. Griffiths, architect and surveyor, called as an expert witness, maintained that a ladder with a man working upon it more that 8 ft. high should be secured by wedges, or held by a man at the bottom. In the present case he considered that the foreman did wrong in taking the two men away.

Other evidence having been given in support of the plaintiff's case,

Mr. Richard Jones, of the defendant firm, was called. He considered that when a man was whitewashing from a ladder he should have a hook on the ladder by which to hold the pail or can. Such hooks were supplied to the men, but if a man could not find one on the job, he could get any appliances he might need at the workshop close by.

George Bowerman, the defendants' foreman, stated that when he suggested taking the two men away, Lewry said, "I can do the work myself—I could do it if it was three times as high." It was not true that the plaintiff spoke about the ladder not being safe. Other evidence was given to similar effect, one witness stating that the man overreached in getting to the pail of whitewash.

The jury found that the defendants' foreman was guilty of negligence in sending the plaintiff to do the work without ascertaining whether the ladder was properly secured; that the plaintiff was not guilty of contributory negligence in doing the work without the ladder being properly secured, but that he was guilty of contributory negligence in not using a hook, and in stretching over to reach the whitewash; and further that the plaintiff knew and fully appreciated the danger, and voluntarily undertook the risk.

This was a verdict for the defendants, and his Honour gave judgment accordingly.

The jury asked whether it would be consistent with their verdict to award the plaintiff some small damages.

The Judge, of course, replied in the negative, adding that he considered the verdict to be a very proper one.

RECENT PATENTS:

ABSTRACTS OF PATENTED INVENTIONS.

11,662.—Facing Tiles: *F. Pagnon.*—Upon the upper edge and one side of the tile is a trapezoidal or wedge-shaped projection for engagement with a recess in the adjacent tile's lower edge and side, and cement or plastic material is filled into grooves or spaces.

11,697.—Partitions: *R. Gracey.*—Hinged leaves, mounted upon rollers and a rail, form a partition, the leaves being extended and folded with screwed rods that have right and left hand threads and are

carried by bearings in the ceiling and the floor; the lower screw turns through nuts and bearings of pulley forks or axles that carry pivots which are mounted in brackets attached to the leaves, whilst the lower screw turns through nuts and loose sleeves or bearings pivotted on to the leaves. The leaves which are nearer to the walls have projections which slide within guide-grooves laid in the floor, and their bevelled edges touch fixed bevelled posts when the partition is extended.

11,707.—A "DANDY" FOR CONVEYING DRAIN AND SIMILAR PIPES: *F. R. W. Woodward.*—Under the pipe plate is placed the platform's swinging frame, the pipe is lifted by the depression of a handle which is to be held in position (for locking the frame) by the loop of a detaining-rod. The swinging frame and the rigid frame are both adjustable as to their widths, when large pipes are to be carried by the outside shoulders of their sockets, which will rest upon rubber pads affixed to vertically-adjustable blocks, the former frame is lifted from off the pins.

11,718.—STAIRCASES: *T. F. Wilkinson.*—The inventor's object is to afford more easy means of ascent and descent within limited spaces by two series of steps, one for each foot, so arranged that each tread of the one series shall be midway between the nearest two treads of the other series, and that the front of each step shall be midway between the front and the back of the tread of the next lower step; handrails or their equivalent will render the way narrow enough to cause the foot to be placed upon the proper steps in succession. The staircases may be used in conjunction with an ordinary staircase, or two sets together, for ascent and descent respectively, can be employed.

11,740.—POSTS FOR FENCING, TELEGRAPH WIRES, &C.: *F. A. Riggs.*—The post has an outside casing of metal, whose lower portion is so shaped as to prevent it from being turned round; a wooden filling is put into the casing, and is covered over with a thin sheath of metal opposite a slit in the outer casing, which extends from the ground to the top, on which is a screw cap; nails and staples for securing wires or rails to the posts are driven through the slits and the metal sheathing into the filling of wood.

11,768.—FIRE-HOSE NOZZLES: *W. F. Agnew.*—The nozzle is devised for the throwing of a straight stream, or a spray having a large diameter, at option. It is fitted with a middle steam pipe within an annular passage, and has two valves which will close either the steam pipe or the nozzle altogether; a small hole in one of the valves will serve for delivering a small stream, a screwed sleeve regulates the volume of the spray, and the annular stream can be turned down at any angle required by means of an adjustable ring carried by another ring which is mounted loosely upon the pipe.

11,805.—ARTIFICIAL STONE: *T. Rouse.*—With sand and gravel, or with broken granite, clinkers, coke breeze, &c., is mixed some Portland or other cement. After the compound has been wetted and mixed it is poured into moulds, and is consolidated by rocking; the moulds are exposed during some days within a closed chamber to the action of steam under pressure, and the temperature is caused to rise slowly to 212 deg. Fahr.; when the articles are taken out a solution of silicate of soda is applied to them; they are then dried and put into a bath of calcium chloride.

11,826.—HOT-WATER CIRCULATING TANKS: *Davies Bros. & Co. and E. A. Davies.*—In order to facilitate access into the interior of the tank for cleaning or other purposes it is formed with a top and bottom which have annular grooves that pass over the shell's plain edge, the ends being tightened on to the body with a middle bolt. The shell's vertical joint may be after the seamed, folded, rivetted, or welded kind, and packing can be used for rendering the top and bottom joints fluid-tight.

11,828.—APPLIANCE FOR MOULDED BRICKS: *H. Grimbleby.*—The carrier is intended for holding soft bricks or blocks; to its back are hinged side wings and a handle or lever; on the latter are arms that will operate in inclined staples affixed to the side wings, which are forced outwards by the lifting and inwards by the lowering of the handle.

11,857.—LOCKS: *R. B. Yentzsch.*—The bolt is for a lock which can be shot by any one of a number of keys and drawn back by only the particular key that was used to shoot it. In one adaptation of the invention levers, pivotted on to a fixed pin, act conjointly with a stump upon the bolt, and some of them are raised whilst others remain down when any one key is used for shooting the bolt; the stump then engages with slots in the raised levers and passes over the ends of the other levers, thus, whilst a key which has bits that work any of the unlifted levers cannot be turned a key which does not raise all the levers which have been raised will not avail for liberating the bolt. The illegitimate employment of a pick is frustrated by the stump that is close to the right-hand side of the keyhole when the bolt is shot, and more combinations are provided for by means of a second stump upon the bolt so that each lever can assume three, instead of two positions.

11,865.—MOULDING OF LAVATORY BASINS: *G. H. Rowley and T. Till.*—After a sheet of the plastic material has been laid against a plaster or other form or pattern, it is rolled into shape with a recessed moulding-roller or cylinder-shaped segment turned by a crank or handle; in one form the pattern is made upon a cylinder-shaped segment, and the plaster mould is mounted upon india-rubber tubes at the bottom of a tray, a cylinder or segment rolling over a fixed tray might replace the sliding pattern tray and the cylinder or segment which turns around a fixed axis.

11,889.—CONNECTIONS FOR BRANCH AND MAIN PIPES: *O. Siedentopf.*—The invention applies to connexions whereby the branch pipe is pressed directly against the main pipe; around the main pipe is a collar made in two parts with one of which will engage screws or fork-shaped wedges which bear upon the flange or saddle-piece of the branch pipe.

11,892.—A GRIP FOR ROPES, RODS, &C.: *W. Swinburn.*—A wedge and a frame or bracket grip the rope, which, together with the wedge, is inserted into an opening made in the frame, a pivotted latch having an inner projection shuts the opening, there is an eye upon the wedge which bears against a roller.

11,924.—A CIRCULAR SAW GUARD: *R. Peacock.*—Cross-bars, which join two curved end-pieces, have their lower ends inserted into sockets upon a plate which will slide lengthwise upon the saw-bench, a lever that is pivotted upon a bracket clamped to one of the cross-bars guards the rear of the saw, and the wood as it passes the saw raises the lever's free end.

11,954.—BRICK KILNS: *T. Lloyd.*—In order that cold air may become heated by contact with the screen the fire-holes are divided into two passages at their inner ends, at each side of each fire-hole are made sight-holes through the brickwork, of the escape-flues those at the ends of the kiln are diverted so as to pass through the ends beyond the outer tie-bars.

12,027.—TIPPING TANKS: *M. F. Adams.*—The tank may be tipped with a handle into a hopper. The discharge overflows into a container, which holds the discharge siphon, whose bell is hung upon an arm. The tipping of the tank causes a pin that projects from its side to strike against a tongue upon the arm, and thereby to lift the bell. The bell drops as the tank resumes its position, so that siphonical action is thereupon started, the container is emptied, and the float sinks to open the inlet.

12,070.—LAVATORY FITTINGS: *O. Mattsson.*—In order that the basin may be readily tilted for its removal when desired, the sides of the basin-holder are provided with pivots which engage with slotted bosses that are formed upon the tipping basin.

12,081.—SOCKETS FOR RAIN-WATER PIPING, &C.: *A. B. Gee.*—Fastening-ears are fashioned upon detachable sockets whose channels will take the piping and the joint packing and a flange inserted into the pipe can be secured with a bolt and nut; slots, slanted or corrugated, are made in the ears of the sockets, or the ends of the ears may be formed in a corrugated or waved shape.

12,163.—INDOOR WATER-SUPPLY APPARATUS: *M. M. Brophy.*—One spout, or nozzle, serves for the delivery of both hot and cold water, the former being obtained by heating the latter with steam. The heater comprises, at its lower end, a perforated pipe within wire gauze through which the steam passes, and at the other end, two twin controlling cocks, as specified in No. 12,162 of 1899, worked with cams. The column or stem for the water-supply has passages through which steam and water flow to its top, whence they pass to the heater through ports from which the hot or cold water flows up to the outlet spout.

12,169-70.—LIFT-VALVES: *W. E. Case.*—A crank is devised for working a valve, which has a swivel-form connexion and spiral plates set around its spindle, whereby the valve will be caused to rotate as the water flows through; when the tap is closed the valve bears against its seating, and so maintains the working-surfaces in good state. (12,170).—The object of this latter invention is to effect a uniform wearing of the valve and its seat and to obviate leakage. A swivel-joint joins the valve to its spindle, and the valve's rotation is brought about by the water's impact against spiral plates which it carries underneath.

12,173.—A SAW GUIDE: *C. O. Seavey.*—For clamping a saw-guide upon the wood and for setting it at any angle desired, the plates, of which it consists, are joined to a split vertical rod pivotted on to the clamping-plate; the plates of the guide may be clamped at any angle with an arm and a set screw; the arm is notched at 45 deg. and other customary angles upon its under side; the saw's teeth, after the wood has been sawn, are stopped with a piece of wood screwed in a slot cut in the vertical rod.

12,189.—LOCKING-VALVES: *E. Bronsdon.*—An arm, which is pivotted on to lugs fashioned upon the tap, locks the handle in position, and is made secure with a bolt to be pressed by means of a spring into a socket in the tap. When it is desired to unlock the tap, the arm is liberated by the insertion of a ribbed key into a hole in the arm and turning it round. In another form a separate support, to which the arm is pivotted, is affixed to the tap.

MEETINGS.

FRIDAY, OCTOBER 12.

Sanitary Institute (*Lectures for Sanitary Officers*).—Dr. H. R. Kenwood on "Infectious Diseases." 8 p.m.

Architectural Association (*Discussion Section*).—Opening meeting of session. Mr. Geoffry Lucas on "Logical Building and its Influence on Design." 7 p.m.

SATURDAY, OCTOBER 13.

Sanitary Institute (*Demonstrations for Sanitary Officers*).—Inspection at the Southwark and Vauxhall Water Works, Hampton. 3 p.m.

Architectural Association of Ireland.—Visit to St. Patrick's Cathedral, under the guidance of Sir Thomas Drew. 2.30 p.m.

MONDAY, OCTOBER 15.

Sanitary Institute (*Lectures for Sanitary Officers*).—Dr. H. R. Kenwood on "Methods of Disinfection." 8 p.m.

WEDNESDAY, OCTOBER 17.

Builders' Foremen and Clerks of Works Institution.—Quarterly meeting of the members. 8 p.m.

Sanitary Institute (*Lectures for Sanitary Officers*).—Dr. H. R. Kenwood on "Water: Composition, Pollution, and Purification." 8 p.m.

THURSDAY, OCTOBER 18.

Carpenters' Hall, London Wall (*Lectures on Sanitary Building Construction*).—Mr. A. Buchanan, Instructor at University College, London, on "Plumbers' Work Connected with Dwelling Houses." 7.30 p.m.

FRIDAY, OCTOBER 19.

Architectural Association.—Annual Conversazione, King's Hall, Holborn Restaurant. 8 p.m.

Sanitary Institute (*Lectures for Sanitary Officers*).—Dr. H. R. Kenwood on "Elementary Statistics." 8 p.m.

Institution of Mechanical Engineers.—Mr. Bryan Donkin on "An Improved Glass Revealer for Studying Condensation in Steam Engine Cylinders and Rendering the Effects Visible." 8 p.m.

SATURDAY, OCTOBER 20.

Sanitary Institute (*Demonstrations for Sanitary Officers*).—Inspection at Leyton Sewage and Destructor Works. 3 p.m.

SOME RECENT SALES OF PROPERTY.

ESTATE EXCHANGE REPORT.

September 20.—By BRADY & SON (at Sheffield).

Grindsbrook Booth, Derby.—Enclosures of land, 19 a. 2 r. 20 p., f. £985
Field Head and 12 a. 3 r. 7 p., f. 2,200
Freehold farmhouse and 43 a. 0 r. 37 p. 1,800
Ibbotson's Bank Closes, 24 a. 3 r. 14 p., f. 1,000
A freehold house and 7 a. 3 r. 30 p. 360

September 26.—By J. PRITCHARD & PORTER (at Llanrwst).

Trefriw, Carnarvon.—Three plots of land, 1 a. 0 r. 30 p., f. 520
Five plots of land, f. 345
House and 1 a. 2 r. 21 p., f. 450
Enclosure of land, 28 a. 2 r. 7 p., f. 900

September 27.—By J. M. LEEDER & SON (at Swansea).

Swansea, Glamorgan.—St. James' Crescent, North Hill, u.t. 64 yrs., g.r. 43*l.* 8s. 1,500

By WINCH & SONS (at Maidstone).

Yalding, Kent.—The Moat Farm, 85 a. 2 r. 19 p., f. 3,100
Freehold house and shop, area 0 a. 2 r. 17 p. 185
Boasalands, and 2 a. 2 r. 7 p., f. 440
Little Boasalands Orchard, 6 a. 2 r. 34 p., f. 600
Mockbeggar enclosures, 21 a. 1 r. 1 p., f. 650
Marden, Kent.—Merriams, and 26 a. 3 r. 35 p., f. 1,100

September 28.—By W. INGRAM SELWYN (at Reigate).

Reigate, Surrey.—Reigate Heath, Jupp's cottages, f. 455

By A. J. SHEFFIELD.

Walthamstow.—22 to 28 (even), Clarendon-rd., f. 1,200
Leytonstone.—120 and 122, Birkbeck-rd., u.t. 78 yrs., g.r. 8*l.* 195
Herne Bay, Kent.—The Grand Drive &c., 12 plots of land, f. 355

By HALL, WATERIDGE, & OWEN (at Shrewsbury).

Marton, Salop.—Marton Grange Farm, 246 a., f. 7,500
Two plots of meadow land, 10 a. 0 r. 3 p., f. 350

By CLEMENTS, SON, & HUGHES (at Coventry).

Fillongley, Warwick.—The Hungerlands Estate, 44 a. 2 r. 14 p., f. 2,350
Arley House and 32 a. 3 r. 2 p., f. 3,000
Various enclosures, 42 a. 3 r. 26 p., f. 3,990
Fillongley Mill and 5 a. 2 r. 15 p., f. 2,120
Arley, Warwick.—Slowley Hall Estate, 88 a. 0 r. 26 p., f. 5,800

October 1.—By CASSIN & CO.

Catford.—84, Catford Hill, u.t. 95 yrs., g.r. 8*l.*, r. 40*l.* 450
Dulwich.—78, Glengarry-rd., u.t. 80 yrs., g.r. 6*l.* 6s., r. 36*l.* 340

By W. W. READ & CO.

Ealing.—Murray-rd., three plots of building land, f. 115
Broadstairs, Kent.—2, Wrotham-rd., u.t. 1643 yrs., g.r. 5*l.*, r. 25*l.* 260

By R. DALTON & SON (at Carlisle).

Bewcastle, Cumberland.—Bewcastle Demesne Estate, 313 a. 2 r. 4 p., f. 7,000

October 2.—By C. H. BROWN.

Pimlico.—73, Pulford-st., u.t. 37 yrs., g.r. 1*l.* 365
Putney.—54, 56, and 58, Deodar-rd., u.t. 85 yrs., g.r. 24*l.*, r. 100*l.* 825
Ashford, Middlesex.—Albert-rd., a plot of land with stable premises, f. 120

By DUNCAN & KIMPTON.

Stoke Newington.—85, Lordship-rd., area 1 acre, u.t. 25 yrs., g.r. 15*l.* 745

By NOKES & NOKES.

Gray's Inn-road.—Nos. 230 and 232, u.t. 10 yrs., g.r. 54*l.*, r. 195*l.* 635
Barnsbury.—46, Sonning-st., u.t. 59 yrs., g.r. 7*l.* 420
5, Bryan-pl., u.t. 43 yrs., g.r. 5*l.*, r. 36*l.* 325
28, Bryan-st., u.t. 44 yrs., g.r. 4*l.*, r. 32*l.* 4s. 300
28, All Saint's-st., u.t. 45 yrs., g.r. 6*l.*, r. 33*l.* 300
34, Huntingdon-st., u.t. 49 yrs., g.r. 7*l.*, r. 50*l.* 690
95, Hemingford-rd., u.t. 42 yrs., g.r. 6*l.*, r. 42*l.* 505
8, 10, and 46, Brooksby-st., u.t. 83 yrs., g.r. 15*l.* 5s. 295
Holloway.—17, Benwell-rd., u.t. 63 yrs., g.r. 8*l.*, r. 44*l.* 440
16, Medina-rd., u.t. 60 yrs., g.r. 4*l.* 10s., r. 34*l.* 365

[*See also next page.*

COMPETITIONS, CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c., Supplied by	Tenders to be delivered
Chapel, Brynmor Estate, Penmaenmawr	.....	J. S. Coverley, Architect, Penmaenmawr, North Wales	Oct. 16
Store Premises, Soothill Upper	Batley Co-operative Society	B. Watson, Architect, Bradford-road, Batley	do.
Stables, Stenhouse Muir	Stirling County Council	A. & W. Black, Architects, Falkirk	do.
Road Metal (500 tons)	Carshalton District Council	W. W. Gale, Civil Engineer, High-street, Carshalton	do.
Broken Granite, &c. (900 tons)	Bishop's Stortford U.D.C.	T. Swatheridge, North-street, Bishop's Stortford	do.
Post Office, Dalkeith, N.B.	Office of Works	Secretary, H.M. Office of Works, Storey's Gate, S.W.	do.
Drainage Works	Alton (Hants.) Guardians	A. F. M. Downie, Alton	do.
Paving, Sibthorp-street	Tynemouth Corporation	J. F. Smillie, Surveyor, Town Hall	do.
*Kerbing, Tarpaving, &c. Oakford Avenue, Sydenham	Lewisham Board of Works	Surveyor, Town Hall, Catford, S.E.	do.
*Kerbing, Tarpaving, &c. Whitburn-road, Lewisham	do.	do	do.
*Sewerage Works	Wembley U.D.C.	Clerk, Public Offices, Wembley, Middlesex	Oct. 17
Sewers, &c.	Fulham Vestry	C. Botterill, Civil Engineer, Town Hall, Walham Green, S.W.	do.
Street Works	Watford U.D.C.	Engineer, 14, High-street, Watford	do.
Waterworks	Annan (N.B.) Commissioners	W. R. Copland, Civil Engineer, 146, West Regent-st., Glasgow	do.
House, Aldin Grange, Northumberland	North-Eastern Railway Company	W. Bell, Architect, Central Station, Newcastle	do.
Boundary Walls, &c., Barry County School	.....	W. H. D. Caple, Architect, Cardiff	do.
Street, Eos Island	Barrow Corporation	Borough Engineer, Town Hall	do.
Street Works, Bradshaw-street	Nelson Corporation	B. Ball, Civil Engineer, Town Hall	do.
Granite Kerbing, &c.	Watford U.D.C.	Engineer, Council Offices, Watford	do.
Ambulance Station, Goulden-street	Manchester Corporation	City Surveyor, Town Hall	do.
Club Premises, Norfolk-street, Nelson	.....	W. & J. P. Dent, Architects, 47, Railway-street, Nelson	do.
Cast-iron Mains, &c., at Workhouse	Hambledon Guardians	E. L. Lunn, Surveyor, 36, High-street, Guildhall	do.
Filter Bed, Wombwell, Yorks.	.....	J. & T. Mitchell, Civil Engineers, Regent-street, Barnsley	do.
*Making-up Roads	Ealing U.D.C.	Engineer, Public Buildings, Ealing, W.	Oct. 18
Road Works, Moat Estate	Rugby Freehold Land Society	J. T. Franklin, Bridget-street, Rugby	do.
Fire Station, Lingard-street, Saltley	Birmingham Corporation	City Surveyor, Council House, Birmingham	do.
Road Works, Ramsden-road, &c.	Friern Barnet U.D.C.	E. J. Reynolds, Civil Engineer, Friern Barnet	do.
Stores, Gawthorpe, Yorks.	Ossett Co-operative Society, Ltd.	J. Kirk & Sons, Architects, Dewsbury	do.
Banking Premises, Killybegs, Donegal	Ulster Bank, Ltd.	Lepper & Fennell, Architects, 33, Waring-street, Belfast	do.
Retaining Wall, New Frystone	Pontefract R.D.C.	J. P. Senior, Surveyor, Carlton, Pontefract	Oct. 19
Waterworks, Dalrymple, N.B.	Ayrshire County Council	J. & H. V. Eglesham, Engineers, Ayr	do.
Alterations, &c., to Inn, Coventry	Messrs. Phillips & Marriott, Ltd.	H. W. Chattaway, Architect, Coventry	do.
Sewers, &c.	Bristol Waterworks Company	J. & C. Hawksley, Civil Engineer, 30, Great George-street, S.W.	do.
Sewers, Mills-road, North	Walton-on-Thames U.D.C.	C. J. Jenkin, Civil Engineer, Church-street, Walton-on-Thames	Oct. 20
Shed, &c.	Banbury Town Council	N. H. Dawson, Civil Engineer, Town Hall, Banbury	do.
Offices, &c., Arthur-street, Clayton-le-Moors	.....	J. W. Cooper, Co-operative Society's Offices, Clayton	Oct. 22
Offices, Trinity-road	Bootle (Lancs.) Corporation	H. Hartley, Architect, 8, Harrington-street, Liverpool	Oct. 23
Drainage Works, Bushmead-avenue, Bedford	.....	J. Lund, Borough Engineer, Town Hall, Bedford	do.
Widening Bridge, Yatton	Great Western Railway Company	G. K. Mills, Paddington Station, W.	do.
*Brick Sewer Culvert	Croydon County Council	Borough Surveyor, Town Hall, Croydon	do.
*Engine Shed	Great Western Railway	Engineer, Paddington Station, W.	do.
*Road Making, &c.	Willesden District Council	Engineer, Public Offices, Dyne-road, Kilburn, N.W.	do.
*Road Making and Paving Works	Hammersmith Vestry	Surveyor, Town Hall, Hammersmith	Oct. 24
Granite, &c.	Bexhill U.D.C.	.....	Oct. 26
Additions to Workhouse	Warwick Guardians	F. P. Trepess, Architect, 8, Jury-street, Warwick	do.
*Hospital	Fylde, Preston, &c. Jt. Hos. Com.	See Advertisement	do.
*Corrugated Iron Buildings	Walthamstow U.D.C.	Engineer, Town Hall, Walthamstow	do.
*Furnishing Council Chamber	do.	do.	do.
*Hot Water Heating	Ilford School Board	C. J. Dawson, Architect, 7, Bank-buildings, High-street, Ilford	Oct. 29
*Alterations to School Buildings	Waltham Holy Cross Sch. Bd.	Clerk, School Board Offices, Waltham Abbey	do.
*Making-up Roads	Windsor R.D.C.	See Advertisement	do.
Sewers, &c.	Long Crendon R.D.C.	J. Taylor, Sons & Santo Crimp, C.E., 27, Great George-street, S.W.	do.
Sewerage Works	Guildford R.D.C.	J. Anstee, Civil Engineer, Commercial-road, Guildford	do.
*Stores, Workshops, &c.	Shoreditch Vestry	J. Rush Dixon, Town Hall, Old-street, E.C.	Oct. 30
*Caretaker's House, &c.	Tunbridge Wells Corporation	Borough Surveyor, Town Hall, Tunbridge Wells	Nov. 1
*Galvanized Corrugated Building	Cotton Powder Company, Ltd.	See Advertisement	No date
Alterations to Premises, 33 and 35, Bank-st. Carlisle	Messrs. R. Gibson & Co.	T. Taylor Scott, Architect, 9, Lowther-street, Carlisle	do.
Converting Bldgs. into House & 2 Cottages, Tedbergh	Mr. C. E. Taylor	J. Hutton, Architect, Kendal	do.
Three Villas, Hall-lane, Walton-on-Naze	Mr. D. Webb	F. J. Nunn & Co., Architects, Walton-on-Naze	do.
Saw Mill and Engine House, Workington	Messrs. J. & W. Jackson	A. C. Scoular, Featham, St. Bees	do.
Paving Setts	Heaton Norris U.D.C.	J. E. Banks, Council Offices, Heaton Moor	do.
House, Hessel, near Hull	Mr. A. Spring	J. M. Dossor, Architect, 2, Manor-street, Hull	do.
Farmhouse, Blackhall Mill	Mr. A. T. Watson	J. E. Parker, Architect, Post Office Chambers, Newcastle	do.
Buildings, Gallowgate, Aberdeen	.....	Brown & Watt, Architects, 17, Union-terrace, Aberdeen	do.
Factory, &c., Great Victoria-street, Belfast	.....	Freeman, Son & Gaskell, Architects, 11, Carr-street, Hull	do.
Staircases, &c., People's Palace, Bradford	.....	W. Longley, Architect, 15, Richmond-road, Bradford	do.

PUBLIC APPOINTMENTS

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Clerk of Works	Cardiff Corporation	£250 per annum	Oct. 17
Junior Clerk	London County Council	.....	do.
*Clerk of Works	Beckenham U.D.C.	£2 8s. per week	Oct. 18
*Builder's Timekeeper and Material Clerk	Battersea Vestry	30s. per week	do.
*City Architect	Bradford Corporation	400£ per annum	Oct. 31

Those marked with an asterisk (*) are advertised in this Number. Competitions, p. —. Contracts, pp. lv. vi. viii. x. & xxi. Public Appointments, pp. xix. & xxi.

King's Cross.—4 and 18, Delhi-st., u.t. 58 yrs., g.r. 12£ £700
5, Charlesworth-st., u.t. 51 yrs., g.r. 6£., r. 30£. 305
Caledonian-rd.—41, Bingfield-st., u.t. 40½ yrs., g.r. 4£ 10s. 410
Kentish Town.—52, Wellesley-rd., u.t. 65 yrs., g.r. 6£., r. 36£ 305
Regent's Park.—Berkeley-rd., i.g.r. 50£., u.t. 47 yrs., g.r. 18£. 570
Hornsey.—2 and 4, Haringey-rd., u.t. 69 yrs., g.r. 10£. 10s. 355
Southall.—25, 27, and 29, Portland-rd., u.t. 98 yrs., g.r. 18£. 625
Hornsey.—11, 15, and 17, Haringey-rd., u.t. 69 yrs., g.r. 15£ 535
Barnsbury.—1 and 2, Grace-st., u.t. 40 yrs., g.r. 22£ 365
Holloway.—24, Palmerston-rd., u.t. 65 yrs., g.r. 6£. 275
Haggerston.—11, Cester-st., u.t. 41 yrs., g.r. 4£ 10s. 170

October 3.—By Andrews, Holland & Hitch.
Chelsea.—49 to 55 (odd), Ovington-st., u.t. 31 yrs., g.r. 24£., r. 177£ £1,025
26, Sydney-st., u.t. 25 yrs., g.r. 6£., r. 81£. 600
69a, 71 and 71a, King's-rd., u.t. 39 yrs., g.r. 6£. 5s., r. 152£. 10s. 1,330
By E. Holsworth.
Haggerston.—11, Trafalgar-rd., u.t. 38 yrs., g.r. 4£. 300
By Mark Hubbard.
Kentish Town.—2, Dartmouth Park-rd., u.t. 52 yrs., g.r. 10£. 10s., e.r. 80£. 1,060
By Alex. Phillips.
Barnsbury.—35 and 36, Charlesworth-st., u.t. 51 yrs., g.r. 11£. 520
Willesden.—28, Windsor-rd., u.t. 92 yrs., g.r. 5£. 10s., r. 33£. 325
By R. Price & Son.
Kennington.—53, Bird-st., f., r. 39£. 405
Hammersmith.—43, Margravine-rd., u.t. 90 yrs., g.r. 5£. 193

Wandsworth.—35 and 36, Trewint-st., u.t. 97 yrs., g.r. 10£. 10s. £175
October 4.—By Alder & Co.
Norwood.—4 and 6, Colby-rd., u.t. 66 yrs., g.r. 15£., r. 64£. 500
By Chesterton & Sons.
Knightsbridge.—7, Trevor-sq., u.t. 12½ yrs., g.r. 7£., r. 50£. 310
By Newbon, Edwards, & Shephard.
Canonbury.—48, Canonbury Park South, u.t. 35½ yrs., g.r. 2£., e.r. 80£. 1,060
Kentish Town.—223, Kentish Town-rd., and 1 and 2, Angler's-lane, u.t. 43 yrs., g.r. 9£. 1,350

***Contractions used in these lists.*—F.g.r. for freehold ground-rent; i.g.r. for leasehold ground-rent; r. for rent; improved ground-rent; g.r. for ground-rent; e.r. for £. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard.**

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£	s.	d.			
Hard Stocks	1	15	0	per 1,000	alongside,	in river.
Rough Stocks and Grizzles	1	11	0	,,	,,	,,
Smooth Bright Facing Stocks..	2	18	0	,,	,,	,,
Shippers	2	2	0	,,	,,	,,
Flettons.....	1	9	6	,,	at railway depôt.	
Red Wire Cuts ..	1	15	0	,,	,,	,,
Best Fareham Red	3	12	6	,,	,,	,,
Best Red pressed Ruabon Facing.	5	5	0	,,	,,	,,
Best Blue Pressed Staffordshire ..	4	7	0	,,	,,	,,
Do., Bullnose	4	12	0	,,	,,	,,
Best Stourbridge Fire Bricks	4	4	6	,,	,,	,,
GLAZED BRICKS.						
Best White and Ivory Glazed Stretchers.....	23	0	0	,,	,,	,,
Headers	12	0	0	,,	,,	,,
Quoins, Bullnose, and Flats	17	0	0	,,	,,	,,
Double Stretchers	19	0	0	,,	,,	,,
Double Headers..	16	0	0	,,	,,	,,
One Side and two Ends	19	0	0	,,	,,	,,
Two Sides and one End	20	0	0	,,	,,	,,
Splays, Chamfered, Squints	20	0	0	,,	,,	,,
Best Dipped Salt Glazed Stretchers and Headers ..	22	0	0	,,	,,	,,
Quoins, Bullnose, and Flats	24	0	0	,,	,,	,,
Double Stretchers	15	0	0	,,	,,	,,
Double Headers..	14	0	0	,,	,,	,,
One Side and two Ends	15	0	0	,,	,,	,,
Two Sides and one End	15	0	0	,,	,,	,,
Splays, Chamfered, Squints	14	0	0	,,	,,	,,
Seconds Quality White and Dipped Salt Glazed	2	0	0	,,	less than best.	

	s.	d.	
Thames and Pit Sand	8	0	per yard, delivered.
Thames Ballast	6	9	,, ,,
Best Portland Cement	37	6	per ton ,,
Best Ground Blue Lias Lime..	24	0	,, ,,

NOTE.—The cement and lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 12s. 6d. per yard, delivered.
Stourbridge Fire-clay in sacks, 32s. 6d. per ton at rly, dpt.

STONE.

	s.	d.		
Ancaster in blocks	2	0	per ft. cube, deld. rly. depôt	
Bath ,, ...	1	7	,,	,,
Farleigh Docon Bath ..	1	8	,,	,,
Beer in blocks	1	6½	,,	,,
Grinshill ,, ...	1	10	,,	,,
Brown Portland in blocks	2	2	,,	,,
Darley Dale ,,	2	1½	,,	,,
Red Corsehill ,,	2	5	,,	,,
Red Mansfield ,,	2	4½	,,	,,
Hard York ,,	2	10	,,	,,
Hard York 6 in. sawn both sides landings, to sizes (under 40 ft. sup.)	2	7	per ft. super. at rly. depôt.	
,, ,, 6 in. Rubbed Ditto..	2	10½	,,	,,
,, ,, 3 in. sawn both sides slabs (random sizes)	1	3	,,	,,
,, ,, 3 in. self-faced Ditto	0	9	,,	,,

SLATES.

in.	in.	£	s.	d.	
20×10 best blue Bangor..		11	5	0	per 1000 of 1200 at rly. dep.
,, best seconds ,,		10	15	0	,, ,,
16× 8 best ,,		6	2	6	,, ,,
20×10 best blue Portmadoc		10	18	0	,, ,,
16× 8 best blue Portmadoc		6	0	0	,, ,,
20×10 best Eureka unfading green.....		11	2	6	,, ,,
16× 8 ,, ,,		6	15	0	,, ,,
20×10 Permanent green		10	0	0	,, ,,
16× 8 ,, ,,		5	12	6	,, ,,

TILES.

	s.	d.	
Best plain red roofing tiles..	41	6	per 1,000 at rly. depôt.
Hip and valley tiles....	3	7	per doz. ,, ,,
Best Broseley tiles	48	6	per 1,000 ,, ,,
Hip and valley tiles....	4	0	per doz. ,, ,,
Best Ruabon Red, brown or brindled Do. (Edwards)	57	6	per 1,000 ,, ,,
Do. ornamental Do.	60	0	,, ,, ,,
Hip tiles.....	4	0	per doz. ,, ,,
Valley tiles.....	3	9	,, ,, ,,
Best Red or Mottled Staffordshire Do. (Peakes).	50	9	per 1,000 ,, ,,
Hip tiles.....	4	1	per doz. ,, ,,
Valley tiles.....	3	8	,, ,, ,,

WOOD.

BUILDING WOOD.—YELLOW.

	At per standard. £	s.	d.	£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9in. and 11 in.	16	10	0	18	0	0
Deals: best 3 by 9	14	10	0	15	10	0
Battens: best 2½ in. by 7 in. and 8 in. and 3 in. by 7 in. and 8 in.....	12	10	0	13	10	0
Battens: best 2½ by 6 and 3 by 6 ..	0	10	0	less than 7 in. and 8 in.		
Deals: seconds	1	0	0	less than best		
Battens: seconds.....	0	10	0	,,	,,	,,

PRICES CURRENT (*Continued*).

	At per load of 50 ft. £	s.	d.	£	s.	d.
Fir timber: Best middling Dantzig or Memel (average specification)	4	10	0	5	0	0
Seconds	4	5	0	4	10	0
Small timber (8 in. to 10 in.)	3	12	6	3	15	0
Swedish balks.....	2	15	0	3	0	0
Pitch pine timber (35 ft. average)..	4	0	0	4	10	0
JOINERS' WOOD.	At per standard.					
White Sea: First yellow deals, 3 in. by 11 in.....	27	10	0	28	10	0
3 in. by 9 in.	24	0	0	25	0	0
Battens, 2½ in. and 3 in. by 7 in.	20	0	0	21	0	0
Second yellow deals, 3 in. by 11 in.	22	10	0	24	0	0
,, ,, 3 in. by 9 in.	20	0	0	21	0	0
Battens, 2½ in. and 3 in. by 7 in.	16	10	0	18	0	0
Third yellow deals, 3 in. by 11 in. and 9 in.	16	10	0	18	0	0
Battens, 2½ in. and 3 in. by 7 in.	13	10	0	14	10	0
Petersburg: first yellow deals, 3 in. by 11 in.	25	0	0	26	0	0
Do. 3 in. by 9 in.	22	0	0	23	0	0
Battens.....	16	10	0	17	10	0
Second yellow deals, 3 in. by 11 in.....	18	10	0	20	0	0
Do. 3 in. by 9 in.	17	0	0	18	0	0
Battens.....	14	0	0	14	10	0
Third yellow deals, 3 in. by 11 in.....	13	0	0	16	10	0
Do. 3 in. by 9 in.	14	0	0	14	10	0
Battens.....	12	10	0	13	10	0
White Sea and Petersburg:—						
First white deals, 3 in. by 11 in..	15	10	0	16	10	0
,, ,, ,, 3 in. by 9 in. ..	14	0	0	15	0	0
Battens.....	12	10	0	13	10	0
Second white deals 3 in. by 11 in.	14	0	0	15	0	0
,, ,, ,, 3 in. by 9 in.	13	0	0	14	0	0
,, ,, battens	11	0	0	12	0	0
Pitch pine: deals	16	0	0	18	0	0
Under 2 in. thick extra	0	10	0	1	0	0
Yellow Pine—						
First, regular sizes	30	0	0	33	0	0
Broads (12 in. and up)	2	0	0	more.		
Oddments	22	0	0	24	0	0
Seconds, regular sizes	24	10	0	26	10	0
Yellow Pine Oddments	20	0	0	22	0	0
Kauri Pine—						
Planks, per ft. cube	0	3	6	0	4	6
Dantzig and Stettin Oak Logs—						
Large, per ft. cube	0	2	6	0	2	8
Small ,, ,, ...	0	2	4	0	2	7
Wainscot Oak Logs, per ft. cube ..	0	5	0	0	5	6
Dry Wainscot Oak, per ft. sup. as inch	0	0	8	0	0	9
¾ in. do. do.	0	0	7	-	-	-
Dry Mahogany—						
Honduras, Tabasco, per ft. sup. as inch	0	0	9	0	0	11
Selected, Figury, per ft. sup. as inch	0	1	6	0	2	0
Dry Walnut, American, per ft. sup. as inch.....	0	0	10	0	1	0
Teak, per load	16	0	0	20	0	0
American Whitewood Planks—						
Per ft. cube.....	0	2	3	0	3	0

JOISTS, GIRDERS, &c.

	In London, or delivered to Railway Vans, per ton. £	s.	d.	£	s.	d.
Rolled Steel Joists, ordinary sections	9	2	6	12	2	6
Compound Girders ,, ,,	12	5	0	13	10	0
Angles, Tees and Channels, ordinary sections	12	10	0	14	10	0
Flitch Plates	11	7	6	12	0	0
Cast Iron Columns and Stanchions, including ordinary patterns	8	15	0	10	10	0

METALS.

	Per ton, in London. £	s.	d.	£	s.	d.
IRON.—						
Common Bars.....	10	0	0	10	12	0
Staffordshire Crown Bars, good merchant quality	10	15	0	11	5	0
Staffordshire "Marked Bars" ..	13	5	0	-	-	-
Hoop Iron, basis price.....	11	0	0	11	10	0
,, ,, galvanised	17	0	0*	-	-	-
(* And upwards, according to size and gauge.)						
Sheet Iron, Black.—						
Ordinary sizes to 20 g.....	11	5	0	-	-	-
,, ,, to 24 g.....	12	10	0	-	-	-
,, ,, to 26 g.....	13	10	0	-	-	-
Sheet Iron, Galvanised, flat, ordinary quality.—						
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.....	14	15	0	-	-	-
,, ,, 22 g. and 24 g.	15	5	0	-	-	-
,, ,, 26 g.....	16	15	0	-	-	-
Sheet Iron, galvanised, flat, best quality.—						
Ordinary sizes to 20 g.	18	0	0	-	-	-
,, ,, 22 g. and 24 g.	18	10	0	-	-	-
,, ,, 26 g.....	20	0	0	-	-	-
Galvanised Corrugated Sheets.—						
Ordinary sizes, 6 ft. to 8 ft. 20 g.	13	15	0	14	10	0
,, ,, 22 g. and 24 g.	14	10	0	15	10	0
Cut nails, 3 in. to 6 in.....	11	10	0	-	-	-
(Under 3 in. usual trade extras.)						
LEAD—Sheet, English, 3 lbs. & up.	20	10	0	-	-	-
Pipe in coils	21	0	0	-	-	-
ZINC—Sheet—						
Vieille Montagne ..... ton	28	0	0	-	-	-
Silesian.....	27	0	0	-	-	-
COPPER—						
Strong Sheet..... per lb.	0	1	1	-	-	-
Thin ..... ,,	0	1	3	-	-	-
Copper nails ..... ,,	0	1	3	-	-	-
BRASS—						
Strong Sheet..... ,,	0	0	11	-	-	-
Thin ,, ... ,,	0	1	1	-	-	-
TIN—English Ingots ..... ,,	0	1	6	-	-	-
SOLDER—Plumbers' ..... ,,	0	0	8	-	-	-
Tinmen's ..... ,,	0	0	10	-	-	-
Blowpipe ..... ,,	0	1	0	-	-	-

PRICES CURRENT (*Continued*).

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2½d.	per ft.	delivered..
,, fourths	2¾d.	,,	,,
21 oz. thirds	3½d.	,,	,,
,, ,, fourths.....	3d.	,,	,,
26 oz. thirds	4¼d.	,,	,,
,, ,, fourths	4d.	,,	,,
32 oz. thirds	5¼d.	,,	,,
,, ,, fourths	5d.	,,	,,
Fluted sheet, 15 oz.	3¼d.	,,	,,
,, ,, 21 ,, ...	4¼d.	,,	,,
½ Hartley's Rolled Plate.....	3d.	,,	,,
⅜ ,, ,, ,, ...	3¼d.	,,	,,
¼ ,, ,, ,, ...	4d.	,,	,,

OILS, &c.

	£	s.	d.	
Raw Linseed Oil in pipes.....	0	3	1	per gallon
,, ,, ,, in barrels	0	3	2	,,
,, ,, ,, in drums	0	3	4	,,
Boiled ,, ,, in pipes.....	0	3	4	,,
,, ,, ,, in barrels	0	3	5	,,
,, ,, ,, in drums	0	3	7	,,
Turpentine, in barrels	0	2	6	,,
,, in drums.....	0	2	8	,,
Genuine Ground English White Lead ...	27	10	0	per ton
Red Lead, Dry.....	25	0	0	,,
Best Linseed Oil Putty.....	0	9	6	per cwt.
Stockholm Tar	1	7	0	per barrel

VARNISHES, &c.

	per gallon. £	s.	d.
Fine Elastic Copal Varnish or outside work ..	0	16	6
Best Elastic Copal Varnish for outside work ..	1	0	0
Best Elastic Carriage Varnish for outside work	0	16	6
Best Hard Oak Varnish for inside work	0	10	6
Best Extra Hard Church Oak Varnish for inside work	0	10	6
Fine Hard Copal Varnish for inside work	0	16	0
Best Hard Copal Varnish for inside work	1	0	0
Best Hard Carriage Varnish for inside work....	0	16	0
Extra Pale Paper Varnish	0	12	0
Best Japan Gold Size	0	10	0
Best Black Japan	0	12	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	9	0
Berlin Black	0	15	0
Knotting	0	10	0
Best French and Brush Polish	0	10	0

TO CORRESPONDENTS.

J. J. (We cannot advise as to what the legal position may be, but we think the contractor ought to have communicated with the architect before making the alterations. He might consider that the sanitary authorities had exceeded their powers). W. L. N.—A. S. (Amounts should have been stated).

NOTE.—The responsibility of signed articles, letters, and papers read at meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

TENDERS.

(Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 10 a.m. on Thursdays*. N.B.—We cannot publish tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of tenders accepted unless the amount of the tender is given, nor any list in which the lowest tender is under £100, unless in some exceptional cases and for special reasons.)

* Denotes *accepted*. † Denotes *provisionally accepted*.

BRADFORD.—For new outlet staircase from stage of Princes Theatre. Mr. T. Brough, superintendent of works. Mr. William Longley, architect:—

Wade Bros., Leeds* £245

New Outlet Staircases from People's Palace under the Princes Theatre.

F. Robinson	£477 10	B. Kershaw	£450 0
Wild & Dennison ..	462 0	Wade Bros.*	446 15

DEVONPORT.—For taking down and rebuilding retaining wall, Exmouth-road. Mr. John F. Burns, Borough Surveyor, Municipal Offices, Ker-street, Devonport:—

Thos. May	£463 0 0	Jenkin & Son..	£329 0 0
R. H. B. Neal..	437 0 0	W. Blake	323 0 0
A. Roberts	425 18 6	Thos. Squires*	282 0 0

DURHAM.—For laying pipe sewers, &c. (1,900 yards), for the Urban District Council. Mr. H. W. Taylor, A.M.I.C.E., St. Nicholas'-chambers, Newcastle-on-Tyne:—

J. Manners..... £8,966 0
J. Carrick, Crossgate Peth, Durham* 1,942 8

GREAT YARMOUTH.—For rebuilding the Duke of York, Great Yarmouth, for Ind, Coope, & Co., Limited. Messrs. Harrington & Ley, architects, 69, Bishopsgate-street Without, E.C., and Corn Exchange, Romford:—

J. F. W. Bray, Great Yarmouth* £758

[*See also next page.*

LINCOLN.—For the erection of boiler-house, laundry, &c., at the County Hospital. Messrs. W. Watkins & Son, architects, Silver-street, Lincoln:—

Halkes Bros.	£3,431 8 10	H.S.&W.Close	£2,817 0 0
Lincoln Co-op. Building Society, Ltd.	2,977 0 0	Main, Kendall, & Main, Loughboro*	2,575 0 0
W.&M.Halkes	2,964 14 0		

LONDON.—For the erection of a school, West Hampstead, for the Managers of Aske's Haberdasher's Schools. Mr. Henry Stock, architect, 9, Denman-street, London Bridge, S.E. Quantities by Messrs. Widnell & Trollope, 20, Tothill-street, Westminster, S.W.:—

Vigor & Co.	£27,162	F. & H. F. Higgs	£24,350
Snewin & Co.	25,985	Dove Bros.	24,265
B. E. Nightingale	25,753	Bowers & Co.	23,910
H. J. Williams	25,633	Turtle & Appleton	23,780
S. F. Halliday	25,178	Gough & Co.	23,754
King & Son	25,058	Chessum & Sons	23,651
Godson & Sons	24,875	Patman & Fotheringham	22,871
Allen & Sons, Ltd.	24,545		

LONDON.—For the construction of 1,220 yards sewers, Bushey Heath, for the Hendon Rural District Council. Mr. J. A. Webb, engineer, Stanmore-hill, Stanmore:—

	Stanford's Joints.	Yarn and Cement Joints.
E. W. Hollingsworth	£ 2,961	£ 2,888
G. R. Mann	2,918	2,845
H. Brown	3,166	3,066
Clift Ford	3,216	3,150
F. W. Killingback & Co.	3,763	3,681
R. Ballard & Co.	2,882	2,717
S. Saunders, Earl's Court-square*	2,747*	2,672
Johnson & Langley	3,700	3,615
W. Jackson	3,160	3,130
E. T. Bloomfield	3,449	3,379
Wilkinson Bros.	3,200	3,049
T. Adams	3,416	3,216

LONDON.—For the erection of house, stabling, Mr. at rear of Town Hall, for the Bermondsey Vestry. &c. R. J. Angel, C.E., Town Hall, Spa-road, Bermondsey. Quantities by Mr. A. F. Wrightson, 26, Budge-row, Cannon-street:—

W. Shurmur	£31,350	F. & H. F. Higgs	£22,430
Todd & Co.	30,969	Foster Bros.	22,365
Johnson & Co.	25,560	Wilson Bros.	22,169
W. Wallis	24,431	H. L. Holloway	22,100
Martin Wells & Co.	24,300	Smith & Son	21,869
H. J. Williams	24,175	Chessum & Son	21,700
Balaam Bros.	24,138	Killby & Gayford, 87, Worship-st.*	21,214

LONDON.—For additions to master's house at workhouse, Notting-hill, for the Kensington Guardians. Mr. Ernest Flint, architect, 80, Coleman-street, E.C. Quantities by Mr. V. Annesley Edlin:—

Head & Son	£729 0	Wilson Bros.	£541 0
Higgs & Co.	723 0	E. & A. Williams	541 0
Foster Bros.	664 0	J. W. Jones	522 0
W. Webber	588 10	Weibking & Son	489 0
Gen. Builders, Ltd.	558 0	E. Wall*	442 0

TUNBRIDGE WELLS.—For the erection of six houses and a shop, Queen's-road, Tunbridge Wells, for the Tunbridge Finance and Investment Company, Limited. Mr. H. Elwig, Jun., architect:—

Marshall	£2,020	Leney & Son	£1,770
Funnell Bros.	1,870	Goodwin Bros.*	1,735

PRESTON.—For reconstructing the Princes Theatre Tithebarn-street, Preston, for Messrs. Sawyer & Woodruff. Mr. William T. Munford, architect, 12, Guildhall-street, Preston. Quantities by the architect:—

		Time for Completion. Weeks.
Charles Walker	£4,535 0 ..	15
William Hothersall	4,490 0 ..	not stated.
Croft & Sons	4,416 0 ..	"
Cartmel & Son	4,357 5 ..	"
William Whiteside	4,350 0 ..	15

WORCESTER.—For the erection of an engine-house at waterworks for the Corporation. Mr. T. Caink, C.E., Guildhall, Worcester:—

Thomas Vale	£2,580	Bromage & Evans, Worcester*	£2,168
Wood & Sons	2,457	Watts & Bray	2,135
Stokes Bros.	2,289		

WORKINGTON.—For alterations to Orchard House, for Mr. J. L. Yeowart. Messrs. W. G. Scott & Co., architects, Victoria-buildings, Workington:—

Masonry.—T. Johnston*	£99 10
Joinery.—R. Douglas*	215 0
Slating.—J. Lythgoe*	33 0
Plastering.—John Lawson*	78 0
Plumbing.—D. M. Walker*	50 0
Glazing and Painting.—H. Sanderson*	58 0

[All of Workington.]

WORKINGTON.—For alterations to shop, Market-place, Workington, for Mr. Henry Taylor. Messrs. W. G. Scott & Co., architects, Victoria Buildings, Workington:—

Masonry.—G. Mann*	£78 15 0
Joinery.—R. Douglas*	95 0 0
Slating.—J. Lythgoe*	33 13 0
Plastering.—J. Perrin*	65 0 0
Plumbing.—Hodgson & Co.*	26 17 6
Glazing and Painting.—Harwood & Cowan*	40 0 0

[All of Workington.]

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